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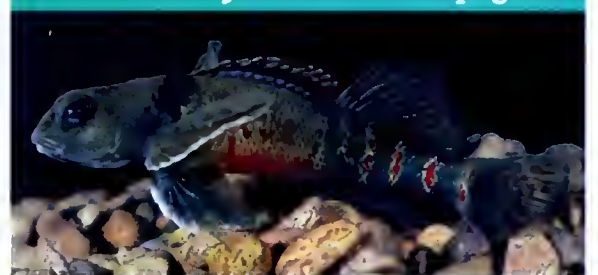
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ANGLER & BOATER

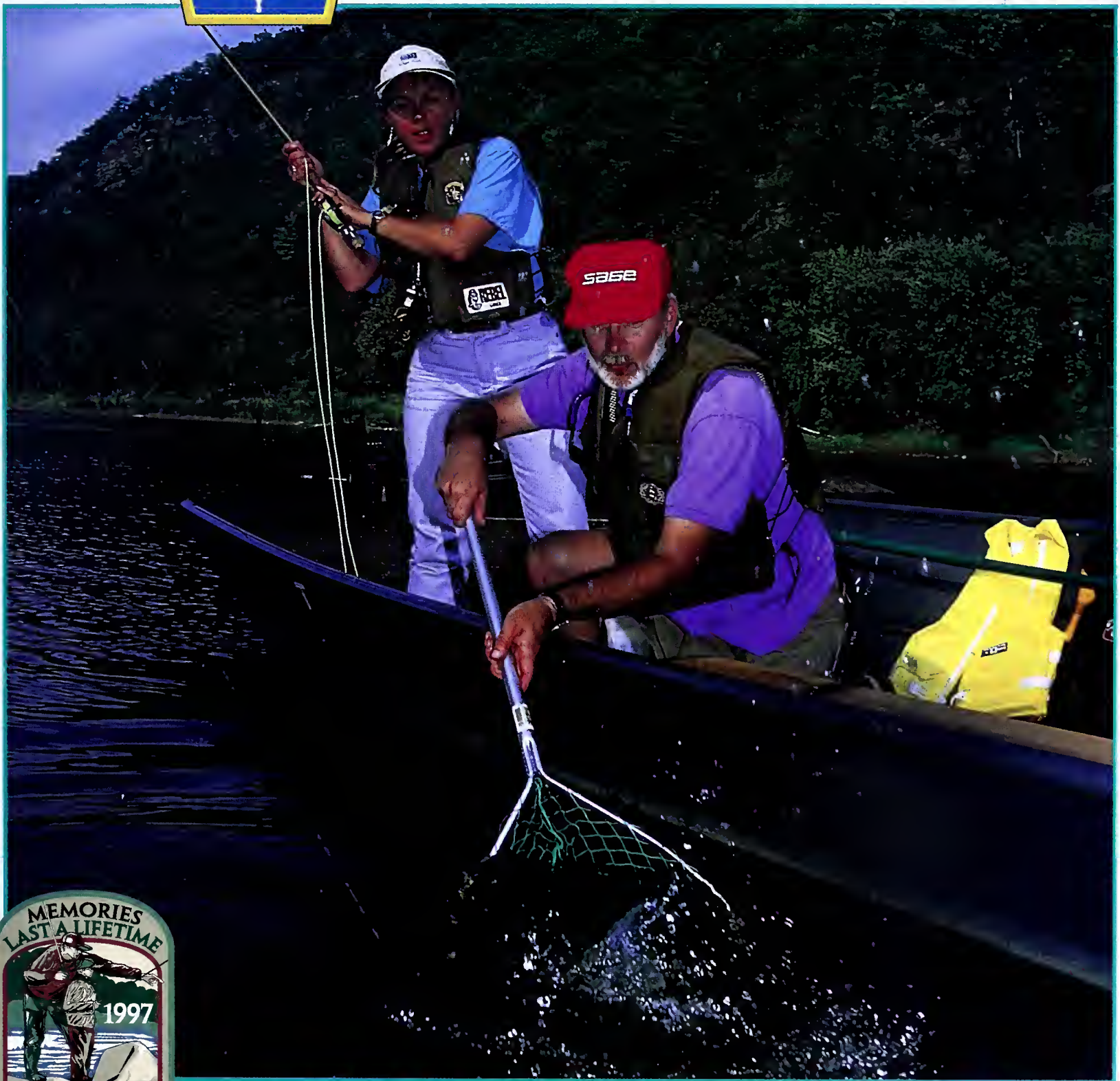


January/February 1997 \$3.00

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JAN 1997

The Keystone State's Official Fishing and Boating Publications



INSIDE: Hybrid Stripers • Canoeing • Mussels • Ice Fishing and more!



Pennsylvania Fishing and Boating Memories Last a Lifetime

The Pennsylvania Fish and Boat Commission's theme for 1997 is "Pennsylvania Fishing and Boating Memories Last a Lifetime." This theme ties in directly to the Commonwealth's overall travel and tourism theme. It recognizes that many of the fondest memories of our anglers and boaters relate to a day fishing with family members, a glorious summer afternoon waterskiing on a mountain lake, or a spring morning in pursuit of an elusive trout.

We are marking this theme in a number of ways. The Commission participates in the Eastern Sports and Outdoor Show in Harrisburg, major sports shows in other cities, and other programs throughout Pennsylvania. Our displays at these shows will feature pictures of Pennsylvanians fishing and boating throughout the years. When you look at these nostalgic photos, you might think you see Uncle Ed or Aunt Jane. You'll see how many things have changed in terms of equipment and technology; but you'll also see how many things have stayed the same in terms of love of the outdoors and fishing and boating skills.

Furthermore, the Commission is selling several commemorative items. Please see page 56 of this issue for more details and ordering information.

The "Fishing and Boating Memories Last a Lifetime" theme reminds us that most of us started fishing and boating as children under the guidance of a parent, grandparent, relative or friend. The family tree of Pennsylvania anglers and boaters stretches back for generations. But as we approach a new century and a new millennium, we need to ask ourselves where the next generations of anglers and boaters will learn their love of the outdoors and the water resources of Pennsylvania. The answer is simple: They'll learn from you. Each of us has a stewardship responsibility for our outdoor resources. So, too, do we, as stewards of outdoor recreation, need to take responsibility to teach others to fish or boat. We need to continue to attract more people to outdoor recreation not just because it's great fun and a great lifetime sport, but because we know that sportsmen care about conservation and protection of our pre-



cious resources. That's why we're asking you to share your skills and share your memories.

Teaching a friend to fish or boat is the best way that you can help provide new fishing and boating memories for future generations. For most of us, time is our most precious asset. We're asking all Pennsylvania anglers and boaters to take time from your hectic schedules to help teach young and older people alike to fish or boat. Take a friend fishing, and give him or her the skills to make angling his or her lifetime sport. Teach a youngster to boat safely, and instill in him or her a love of the water and the skills to enjoy it safely. Share your skills and your love for fishing and boating.

The Fish and Boat Commission is also inviting all anglers and boaters to take a trip down memory lane and share your

most memorable fishing or boating experiences. Maybe it was the time you caught that record sunfish as your Dad looked on, or the day you learned that you could stay up on waterskis for more than a few seconds. By recounting the fishing and boating memories that have lasted your lifetime, you can help others learn the wonders of water-based conservation and recreation.

It's easy to participate. Just write an essay, anecdote or true story of no more than 750 words describing your most memorable day on the waters of the Commonwealth. Your story can make us laugh, make us cry or make us think back to our good old days on the water. The contest rules appear on page 61 of this issue.

Share your memories of fishing and boating and teach a youngster the skills that have made fishing and boating so memorable for you. By doing this, you can help ensure that new generations of anglers and boaters will have fishing and boating memories that last a lifetime.



Peter A. Colangelo
Executive Director
Pennsylvania Fish & Boat Commission

Pennsylvania ANGLER & BOATER

The Keystone State's Official Fishing and Boating Magazine

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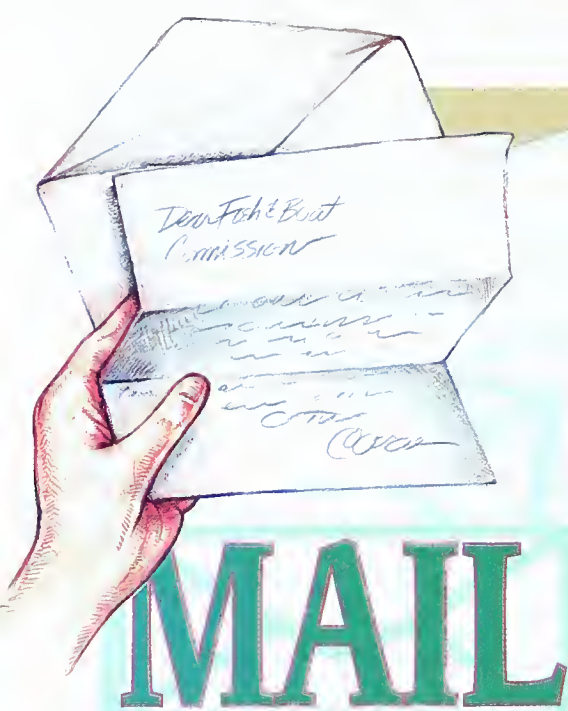
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This issue's cover was photographed by Barry & Cathy Beck. The fishing scene is the Columbia County portion of the Susquehanna River, where smallmouth bass are the main quarry.





PA Angler changes

You've asked for views on the upcoming changes to *Pennsylvania Angler*. I'm "agin" them. I fail completely to see how publishing bimonthly will increase interest in the publication. Quite the contrary. Rather than be without material such as is published in the *Angler* for 60 days, readers will turn to other PA fishing publications, of which there are several.

As a former publisher, I can testify that frequency of publication is a factor in readership. To increase reader interest, publishers increase the frequency of publication, not the reverse.

I also deplore the addition of boating information. Please, don't clutter up my favorite fishing magazine with boating information.

Don't expect me to be impressed by the news that I'll be getting just as much content in a 64-page publication as I got in two 32-pagers. A, I doubt it. And B, even if it's true, it's irrelevant. I want my *Angler* monthly, not bimonthly.

Lastly, I consider your explanations insulting in that they assume we fishermen/subscribers are not astute enough to know the real reasons for going bimonthly. Money. Specifically, expenses. It takes less effort—and thus, less money—to compile, edit, publish and mail 64 pages bimonthly than it does to produce a 32-pager each month. Layout and printing expenses are likewise reduced.

I harbor a strong suspicion that economics, not a desire to provide better service, has stimulated this unfortunate decision. And that, with its baloney about better content, the Commission is following that old and well-founded political

advice that says, "When you're being run out of town, get ahead of the crowd and make it look like a parade." If the Commission cannot reverse its unfortunate decision to reduce the frequency of appearance of the *Angler*, then at least give us subscribers credit for having sense enough to see through the flimsy excuses about better service, more content, etc.

Higher license fees, more increasingly complicated and expensive special seasons, and now fewer *Anglers*. What's next?—*Bud Angst, via email on the Commission's World Wide Web site.*

We've been trying to point out the benefits of bimonthly publication, but right up front we've said that the changes to the *Angler* came as a result of the Commission wanting to bring expenses more in line with revenue. Just so there's no mistake, yes, this decision was economic. In fact, the Commission will save about \$78,000 a year in printing and postage costs by going bimonthly.

We doubled the size of the magazine for two main reasons. First, we believe it maintains the quality of the product. We'll save money with bimonthly publication and still give readers the same number of pages each year we print with monthly publication. Second, over the years the Commission has received letters from subscribers who say they'd like to see a magazine with more pages in it so that we can cover a wider range of topics in each issue. Bimonthly publication of 64 pages instead of 32 pages lets us do that.

Our adding value to the magazine is no hype. Special publications that would have been printed separately now appear in the magazine. Subscribers would not see this information unless they specifically ordered certain publications. We're also printing the *PLAY* newsletter quarterly in the *Angler*—adding 8 pages, not using the current 64.

Our thinking on including boating material is based on the Commission's desire to let the magazine reflect the entire Commission's purview. Our surveys show that some 80 percent of Pennsylvania boat registrants own boats specifically for fishing, and that some 75 percent of *Angler* readers own boats for fishing.

Thanks again for your comments. Please do let me know your opinion of the new *PA Angler & Boater*.—*Art Michaels, Editor.*

Noefish

There is a new strain of fish in the waters of the Pocono Mountains. It is called "noefish."

A few weeks ago, I took a ride to seek out a new stretch of water to fish. I finally found a small stream that I had never fished before. Being unsure about whether the water was open or posted, I went to a nearby tackle shop and inquired about the stream. The owner said that there were no fish in that stream. I decided to give it a shot anyway.

I fished for about 2 1/2 hours and caught six nice fish. "Noefish" have an amazing resemblance to brook and brown trout. Therefore, I accepted the gentleman's veracity that there were "noefish" in the stream—a new breed of trout!

These Noefish are beautiful and sturdy fighters. So anytime you hear of a stream that has Noefish in it, go fishing. They seem to have no preference in the kind of artificials presented to them. I did not find it necessary to change flies. The Noefish took the first offering.

I seriously doubt that these Noefish were stocked by the Fish and Boat Commission. Perhaps the streams of Pennsylvania are healthy enough to produce a new strain of trout.

I have been catching these Noefish for many years, thinking that this fish was a normal trout, stocked or wild. The conclusion that I have come to is this: Fish any place that you may be told that the fish are not there. You can be sure that there are, at the very least, "Noefish"!—*Thom Rivell, Greentown, PA.*

Wild trout

I think it's great that the Fish & Boat Commission is attempting to restore the wild trout population. I'd like to see more wild trout, and I think more restrictions on sizes and creel limits would increase their numbers. I release any wild trout I catch because there are very few of them in my area. Keep up the good work!—*Ronald J. Messimer, Berwick, PA.*

Basic fishing questions

I enjoy reading your publication *PA Angler*. However, some of the comments I hear and somewhat agree with are:

1. Why don't they give more info on some basic tips for good fishing?
2. In what ways do you fish (fly fish) whether it is an overcast day as compared to a sunny "blue sky" day?

Memories To Last A Lifetime



3. Bait fishing when to use artificial compared to using live bait?

4. Does power bait work as well as expected?

These are just a few of the questions I hear.—*“Angler Jim.”*

Thank you for your letter. We’re glad you enjoy *PA Angler*.

You asked why we don’t give more information on basic tips for good fishing. From time to time we print basic information, but most of our readers tell us they’re skilled, so we try to cater to their needs. What kinds of basic information would you like us to print? We love to hear from you and other readers with suggestions on subjects for the *Angler*!

You also asked about the difference in fly fishing on sunny days compared to overcast days. Many fish are sensitive to light. They prefer shaded water. Whether you use flies or lures, you might want to study a waterway carefully and locate the borders between sunlit and shaded spots. Work your flies and lures along these edges.

You also asked when to use artificial lures instead of bait. For one thing, using live bait can be more expensive than using artificial lures. Also, many anglers use minnows to locate schools of crappies, and then switch to jigs once the school has been found. Whether to use live bait or artificials is also a matter of personal preference—which are you more confident fishing?

You asked if scents work. Yup! They do! In my personal experience, I’ve fared better with scents applied to lures than I have without them.

Thanks again for your letter! I hope this information is helpful.—*Art Michaels, Editor.*

Be careful out there!

This is an open letter to the jet boat operators on the Susquehanna River. Boat builders had a picture of the Susquehanna River at Rockville when they developed the new jet bass boats. They are the ultimate rig for this waterway and I look forward to the day when I can own one. For now I will be happy to fish the river as I always have, by wading.

Last August 11, along the east shore of the river below the Fort Hunter Access, I had two close encounters with jet boaters in less than an hour. I was wading with two of my fishing partners in about three feet of water working my way across the only easily navigable portion of the river in this area. Because it’s the only easily navigable

spot, it is also the obvious choice for boaters. A johnboat cautiously and courteously made its way upriver, giving us a wide berth and no-wake speed. The first jetboat came from downriver. He did reduce his speed somewhat, but did not pass at what I could consider a courteous distance or safe speed. The second boat came from upriver very fast and the operator yelled as if I were going to be able to move fast enough to get out of the way. He throttled back long enough to decide that fish were more important than fellow fishermen, then gunned it south passing 15 feet or less from me. He even had the nerve to grin as though the encounter could be funny to someone waist deep in rapid rocky water.

Maybe these boaters felt as though I was jaywalking on a midtown Harrisburg street. I must have missed the part in the safe boating manual requiring anglers to run from the water every time someone gets a hankerin’ to try a spot 10 miles downriver.

The new boats have the run of the river and just because they can run 45mph in less than six inches of water does not mean they are exempt from safe and courteous boating practices.—*Chuck William, Denver, PA.*

Conodoguinet Creek questions

I just moved to Franklin County from Montgomery County. I’ve been an avid smallmouth bass and pickerel fisherman all my life. I fished the Tuscarora when I lived near East Waterford, catching nice smallmouth bass and a few pickerel.

I tried to fish the Conodoguinet Creek by Newburg near the old covered bridge, but couldn’t even catch a hellgrammite. The creek was so beautiful that it shocked me that the fishing was so poor. Finally, I started to use a big crayfish. I had a few bites, but nothing large enough to take the bait. I switched to a small plug and caught a small fallfish. Then I changed to a spinner; I caught dozens of fallfish up to 15 inches in length.

Where are the bass? Are there any trout in this creek? It seems like good habitat for bass, trout, pickerel and sunfish, but I haven’t caught any. Where are the hellgrammites and the abundance of crayfish found in other creeks? Where can I go for smallmouth fishing near Shippensburg?—*Andrew Sauerwald, Shippensburg, PA.*

Conodoguinet Creek supports fair populations of reproducing sportfish in the stream reach between Roxbury and Carlisle.

Stream electrofishing surveys by Fish & Boat Commission biologists captured rock bass to 10 inches, redbreast sunfish to 7 inches and smallmouth bass to a respectable 16 inches in these areas, and there were lots of fallfish to fill the angler’s day when other species were not biting. Two of our more productive fish sampling locations were upstream of the Middle Spring Creek confluence and in the area of the PA 641 bridge near Newburg. The fish holding at those locations may have changed because of the flood waters last summer, so you may have to scout for new pools and cover.

The creek does have its share of environmental problems throughout its length. Development, urbanization, storm water runoff and the cumulative effects of numerous wastewater treatment plants in the lower reaches strain the stream’s ability to assimilate various pollutants from about Carlisle downstream to its confluence with the Susquehanna River.

The upper reaches of the Conodoguinet Creek, the area of your interest, is affected by agricultural practices. Nitrate concentrations and sediment from runoff from cultivated land, and feedlots with increasing numbers of farm animals resulting in manure runoff to the stream, are some of the problems.

Adult trout are stocked in the spring from PA 997 near Roxbury upstream, including the 54-acre Letterkenny Reservoir, to the confluence of Bear Valley Run.—*Larry Jackson, Area 7 Fisheries Manager.*

Backtalk

Argue with the Commission. Applaud us. Advise us. The Fish & Boat Commission invites you to write letters to the editor in this space if you have an idea on *Pennsylvania Angler & Boater* content; a question or concern about the Commission; something to say about fish and fishing, or boats and boating; or a helpful idea for anglers or boaters. Letters are edited for clarity and space considerations.

Address correspondence to: Art Michaels, Editor, *Pennsylvania Angler & Boater*, P.O. Box 67000, Harrisburg, PA 17106-7000.

PITTSBURGH'S HYBRID STRIPERS

BY MIKE SAJNA

The wall in Tim Reddinger's bait shop pretty much tells the tale. Toward the back of the small Bridgewater, Beaver County shop hangs a mount of a tiger musky taken from the nearby Beaver River. At the front of the shop, near the window where everybody can see it, hangs a mount of a 31.8-pound hybrid striped bass. It also came from the Beaver River.

When Reddinger opened the Reddi Bait Shop 10 years ago, muskies and tiger muskies were the fish Beaver Valley anglers pursued with a passion. Over the past four or five years, though, the two musky species have taken a back seat to the hard-fighting hybrid striped bass.

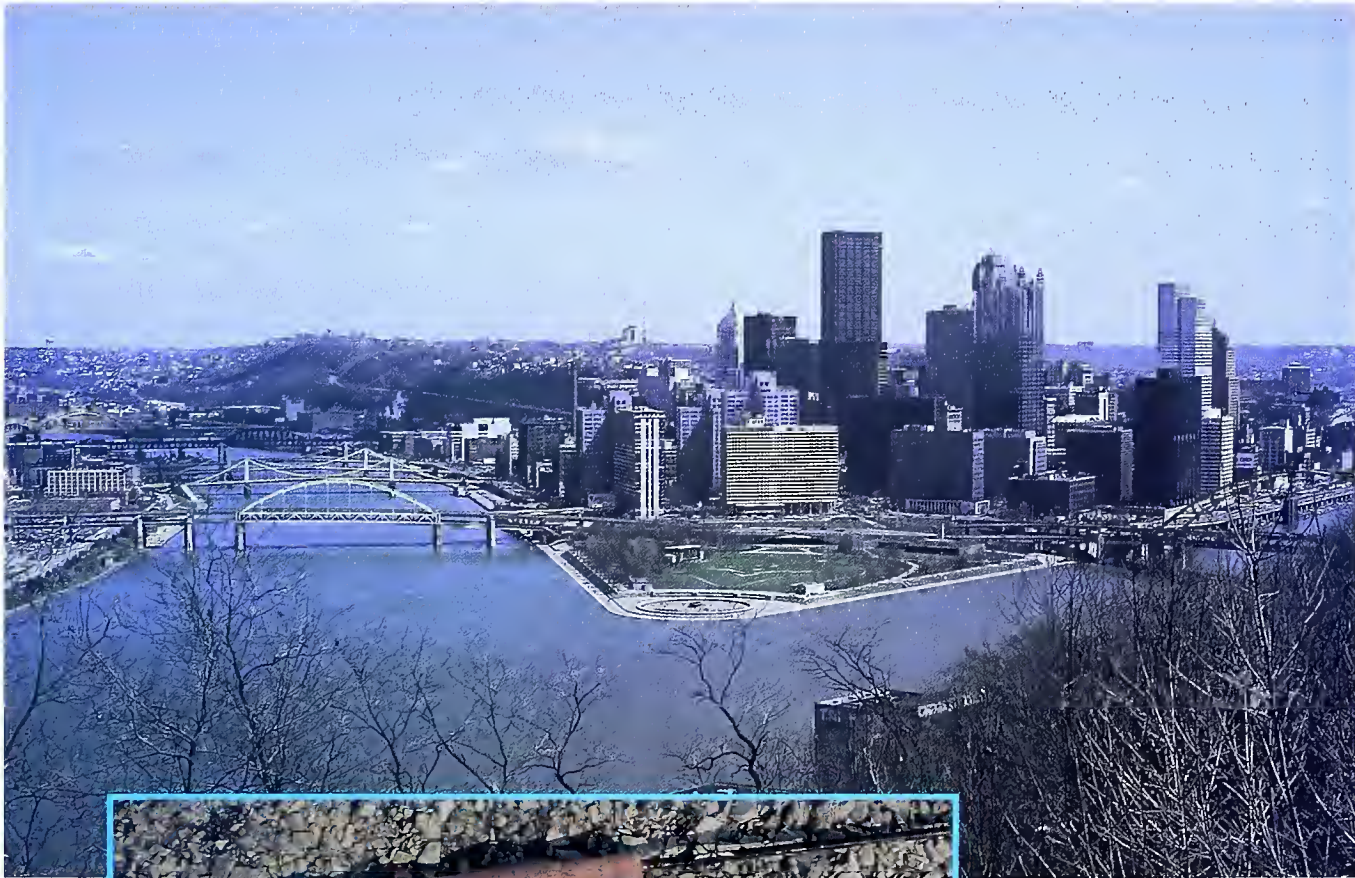
"Guys around here go after them tooth and toenail," the garrulous Reddinger says. "As each and every year goes by, they're learning a little bit more, learning their habits and where they hang out. They catch them left and right around here."

Beaver Valley anglers have been so captivated by hybrid stripers that in 1995 a group of them led by Reddinger launched an emergency rescue effort to save some of the big fish. The drama started when water in the channel feeding the power plant at the Tenth Street Dam in Beaver Falls dropped, stranding about 20 hybrids and dozens of other fish in six inches of water in the power plant chute.

Alerted to the problem by workers at the nearby Republic Steel plant, Reddinger and others

obtained permission to enter the chute and formed a bucket brigade that saved all but three of the hybrids, as well as numerous other fish. For his efforts, Reddinger was presented with the Fish and Boat Commission's Conservation Service Award.

"We crawled 20 feet straight down into the turbine chute and let me tell you, it was kind of scary in there," Reddinger says. "But we couldn't let them die. We saved buckets full. We saved trout, stripers, smallmouths, carp. We saved them all, but the hybrid stripers were the most important to all the guys there."



Since the mid-1980s, hybrid striped bass also have been a much prized fish on the Ohio River. The Fish and Boat Commission first stocked hybrid stripers in Pittsburgh's three rivers in 1984. Before then, though, both Ohio and West Virginia had extensive hybrid stocking programs in place. As new pollution control laws and the decline of the steel industry cleaned up the city's rivers, some of those fish made their way upstream, touching off a storm of excitement.

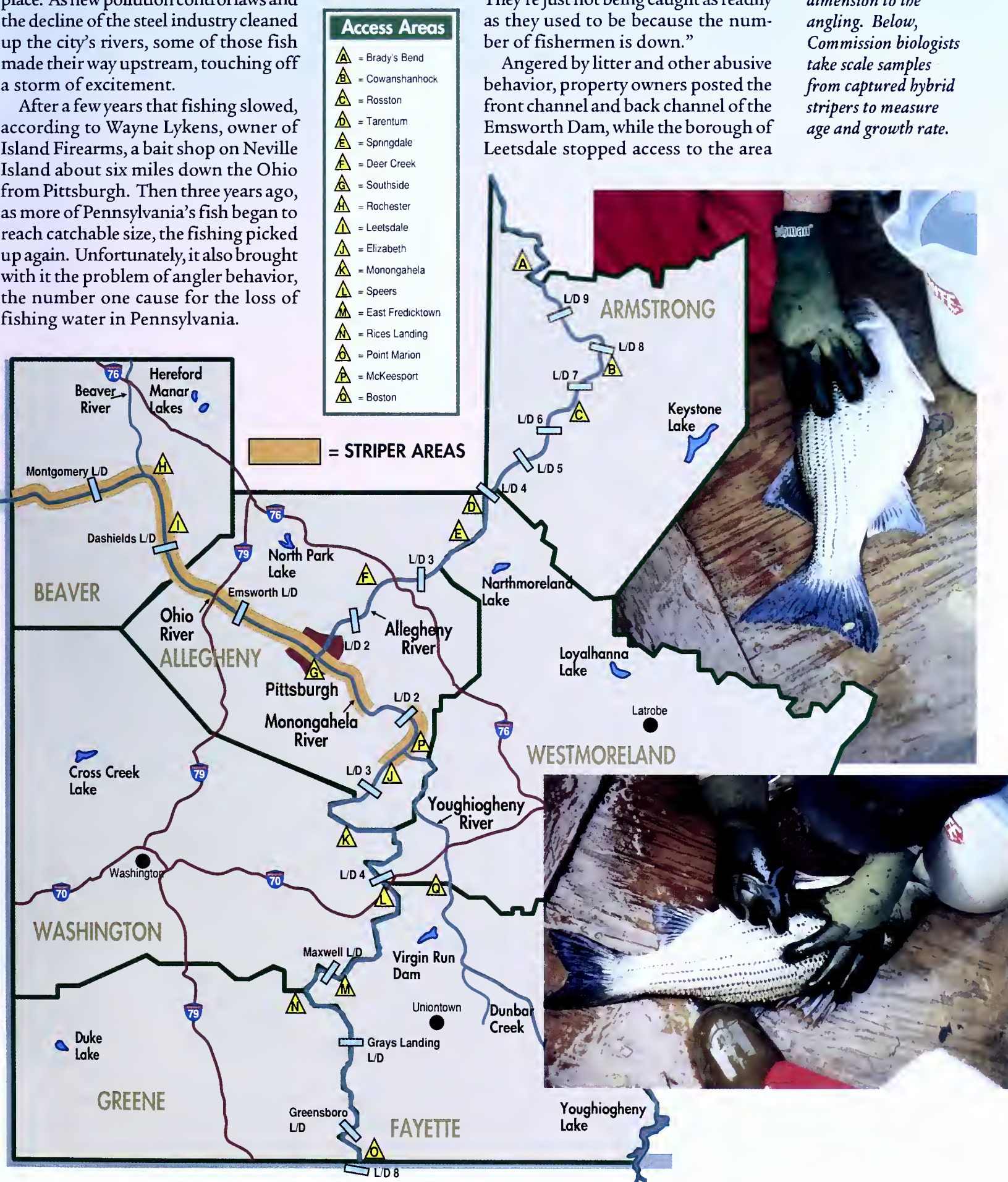
After a few years that fishing slowed, according to Wayne Lykens, owner of Island Firearms, a bait shop on Neville Island about six miles down the Ohio from Pittsburgh. Then three years ago, as more of Pennsylvania's fish began to reach catchable size, the fishing picked up again. Unfortunately, it also brought with it the problem of angler behavior, the number one cause for the loss of fishing water in Pennsylvania.

"The fishing about two years ago was really hot," says Lykens. "I mean really hot. One of the reasons it has slowed now is because most of the stripers are caught up near the dams and our dams are being closed off to fishing. It isn't that the fish aren't there. The fish are still there.

They're just not being caught as readily as they used to be because the number of fishermen is down."

Angered by litter and other abusive behavior, property owners posted the front channel and back channel of the Emsworth Dam, while the borough of Leetsdale stopped access to the area

The Commission stocks hybrid striped bass in the revitalized Ohio, Monongahela and Allegheny rivers to add another dimension to the angling. Below, Commission biologists take scale samples from captured hybrid stripers to measure age and growth rate.

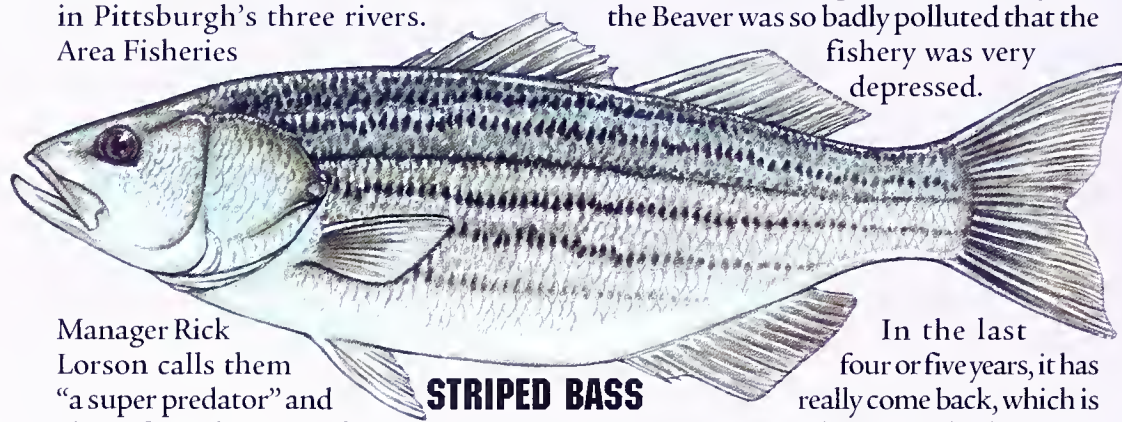


around the Dashields Dam. Lykens estimates he lost 150 customers a day when the two dams were posted. Today, he says, there are only three places left on Neville Island open to public fishing.

"The posting hurt a lot of people in this area," Lykens says. "Me as a business person it hurt. But it also hurt the fishermen themselves. And I don't blame them [landowners]. Most of the people here on the island are just fed up with the litter people leave."

"Guys with boats are having a good time with these bass, though," he adds. "I've never seen a fish fight like these things."

The fighting nature of hybrid striped bass is one reason the Fish and Boat Commission decided to stock the species in Pittsburgh's three rivers. Area Fisheries



Manager Rick Lorson calls them "a super predator" and classifies them in the "same category as steelhead and other tackle-busters." He says the Commission decided to stock them to add another dimension to angling in the revitalized Ohio, Monongahela and Allegheny rivers.

Although anglers have reported good catches of hybrid striped bass, stockings by the Fish and Boat Commission have been spotty because of difficulty in obtaining the fish. "Everybody wants them," says Craig Billingsley, the Commission Area Fisheries Manager whose territory includes the Beaver River.

The first stocking was in the Monongahela near Elizabeth in 1984, according to Lorson. That was followed by other plantings in the lower Monongahela in 1986, 1988, 1990, 1995 and 1996. The lower Allegheny received fish in 1986, 1995 and 1996, and the Ohio River in 1986, 1990, 1991, 1995 and 1996. On the Ohio, which stretches 40 miles to the Ohio-West Virginia line, even numbered pools were stocked in even numbered years, and odd numbered pools in odd numbered years.

To the best of Billingsley's knowledge, the Beaver River has never been stocked with hybrid stripers. Fish in it moved

PITTSBURGH'S HYBRID STRIPERS

there from the Ohio, and from two lakes that had been stocked with them and empty into the river, Lake Arthur in Butler County and Shenango Reservoir in Mercer County.

Billingsley calls the hybrids presence in the Beaver a "big plus, because for years the Beaver was so badly polluted that the fishery was very depressed."

In the last four or five years, it has really come back, which is a credit to everybody."

According to Lorson, the Three Rivers pool that surrounds downtown Pittsburgh itself is managed as a lake because of its size, forage base and access. The pool reaches from Emsworth on the Ohio to Sharpsburg on the Allegheny to Braddock on the Monongahela, an area of over 2,900 acres.

Along with making for spotty stockings, difficulties in obtaining hybrid striped bass also kept early stocking numbers low. Ohio's program showed eight fish per acre to be the number

needed to establish or improve a hybrid striped bass population, according to Lorson. Until 1991, though, the Commission was able to obtain only enough fish to stock Pittsburgh's rivers at a rate of four fish per acre.

Recently, however, the Commission

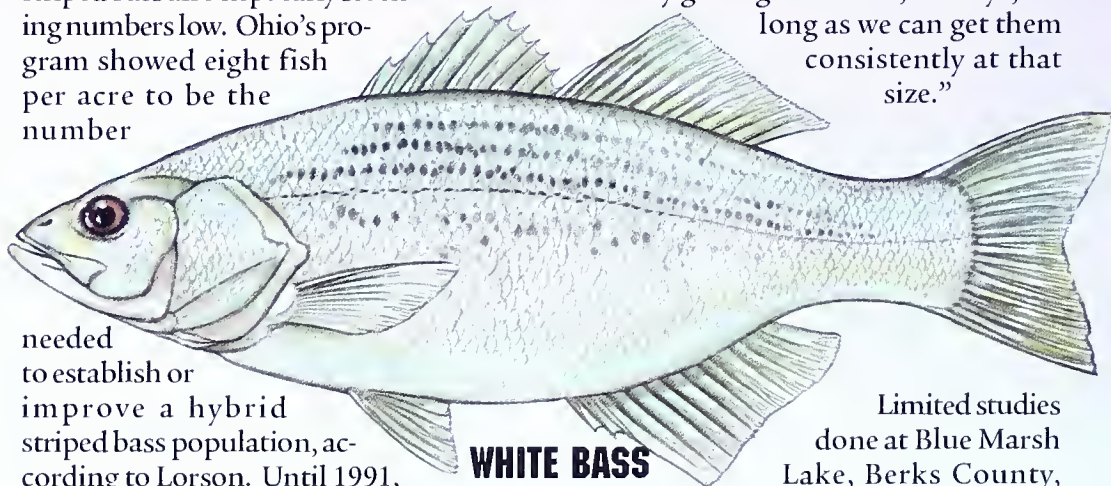
found a stable source for the hybrids. The Commission is trading fish, mostly wall-eyes, with South Carolina and Georgia. Both Lorson and Billingsley hope a stable source will enable continued annual stocking of the three rivers.

Even though the source for hybrid stripers may have stabilized, access limitations continue to keep the stocking rate in the Dashields pool of the Ohio River at four fish per acre, according to Lorson. The New Cumberland pool on the state line will continue to be stocked at the rate of four fish per acre, too. But that pool also benefits from stockings by Ohio and West Virginia. Like the Three Rivers pool, the Montgomery pool, which includes the mouth of the Beaver River, is slated to receive eight fish per acre.

Because of the presence of a number of power plants with warm-water discharge pipes, the Monongahela River in the Elizabeth area also will be stocked with hybrid stripers. It will be the only section of the three rivers above Pittsburgh to receive fish.

"They flock to warm-water discharges," says Lorson. "Out in the Midwest that is where they have major fisheries during the winter. December, January and February are prime months to catch big hybrids out there. That's why we're managing it, but we just haven't been able to develop that yet. We have some evidence of fish there, we've surveyed some fish, but we just haven't had real good stockings."

The stocked hybrid stripers range from one to two inches in size. Lorson would like to get fish of three to four inches, but said Ohio has reported good results stocking the smaller fish. "So maybe we are okay getting those fish," he says, "as long as we can get them consistently at that size."



WHITE BASS

Limited studies done at Blue Marsh Lake, Berks County, show the fish reaching 7 to 8 inches after one year, 10 to 14 inches after two years, 17 to 20 inches after three years, and 17 to 22 inches after four years. To help develop a trophy hybrid striped



Allegheny River

bass fishery in Pennsylvania, the legal size limit statewide was recently increased from 15 to 20 inches, according to Lorson.

Hybrids were chosen for stocking in Pittsburgh's rivers instead of purebred stripers because the Ohio, Monongahela and Allegheny are too warm for the full-blooded species. Programs in Ohio and West Virginia also have shown that hybrids do well in the Ohio River. None of the three rivers is part of the striped bass original range, but they are native waters of the white bass.

Hybrid striped bass are a cross between striped bass and white bass. Striped bass can grow to more than

Striped bass and hybrid striped bass are most easily distinguished, according to Lorson, by the stripes on their sides above the lateral line. Purebred stripers have seven or eight heavy, distinct black stripes that run the length of the body, from gill to tail. Hybrid stripers have seven or eight less distinct lines that are usually broken. The fish on Reddinger's wall appears to have both solid and broken lines on its sides.

Reddinger says he talks to an average of about 10 anglers a week who catch hybrid stripers. The average fish is about 25 inches long and weighs 4 to 6 pounds.

A good fish goes 12 pounds.

a deeper body and a more arched back than hybrids. They also have a relative lack of stripes—only one stripe reaches from gill to tail on the body, and a white bass has only one tooth patch on the back of the tongue. Hybrid and purebred striped bass have two tooth patches on the back of their tongues.

Both Reddinger and Lykens report that some hybrid stripers are taken by anglers in the three rivers year-round. The slow periods are late fall and early spring when the water is cold. Lykens says April, May, August and September are among the best months. Most fish are taken early in the morning or in the evening in the whitewater around the dams. Few hybrids are caught in open water.

Lures and baits that work well include jigs and minnows, particularly white plastic-tailed jigs, crankbaits, night-crawlers, shiners and small spoons.

"Anything silver works because there are a lot of emerald shiners and a lot of gizzard shad in the rivers," says Reddinger. Then he launches into a story about a youngster armed with a \$10 spincasting outfit who was once fishing next to him and caught three hybrids in a row.

"I could have reached out and touched the kid," he adds. "But I couldn't buy a fish to save my life. I was ready to throw him in, but went home instead."

50 pounds in Pennsylvania, but a big white bass weighs only 1 1/2 to 2 pounds, according to Lorson. Because of the white bass element, most hybrid stripers run between 5 and 15 pounds.

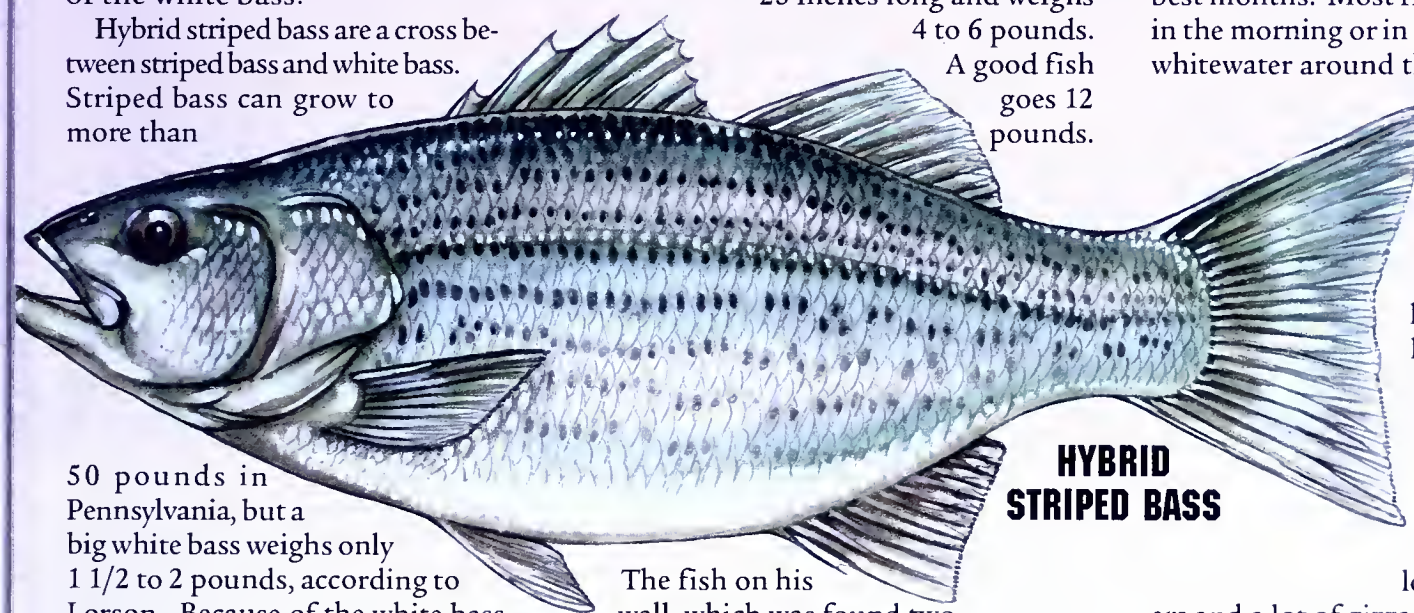
The 31-pound fish on the Reddi Bait Shop's wall was found dead in the Beaver River. Reddinger had it mounted as a show of respect and says he is not sure if it is a hybrid or purebred striped bass. The Commission once tried stocking purebred stripers in Lake Arthur and the Shenango Reservoir, according to Billingsley, but both of those waters proved too shallow and warm for the species.

The fish on his wall, which was found two years ago, measures 41 1/4 inches long and has a girth of 26 inches.

"They don't call them 'hybrids' around here. They call them 'stripers,'" Reddinger says. "I hear the word 'hybrid' when a fish is under 20 inches and I hear the word 'striper' when it gets over 20 inches."

One problem in managing hybrid striped bass, according to Lorson, is anglers who mistakenly keep undersized hybrids thinking they are white bass, the panfish of the rivers. White bass have

HYBRID STRIPED BASS





NESCOPECK: ROUND TWO

BY JULIE LALO



None of the trademark signs points the way in. No dark-stained wood announces that this is a state park. Still, there's no mistaking that this patch of Luzerne County is a special area. The bottomlands are home to woodcock. River otters, eastern bluebird and osprey aren't unknown. And Nescopeck Creek, with its Delayed-Harvest, Artificial-Lures-Only reach, is so popular that anglers are willing to drive hours for the pleasure.

Sounds and looks peaceful, but this little piece of cold-water heaven stands now as an example of what has been accomplished through citizen participation in the decision-making process.

Those who come to this wooded valley must know they're treading on public

land, but not many realize that the 3,000-acre patch surrounded by State Game Lands 187 officially became Nescopeck State Park more than 25 years ago. It was yet another lowland that seemed like a good bet for flat-water recreation and flood control, and the state used Project 70 money to buy the land and draw plans for an 830-acre impoundment.

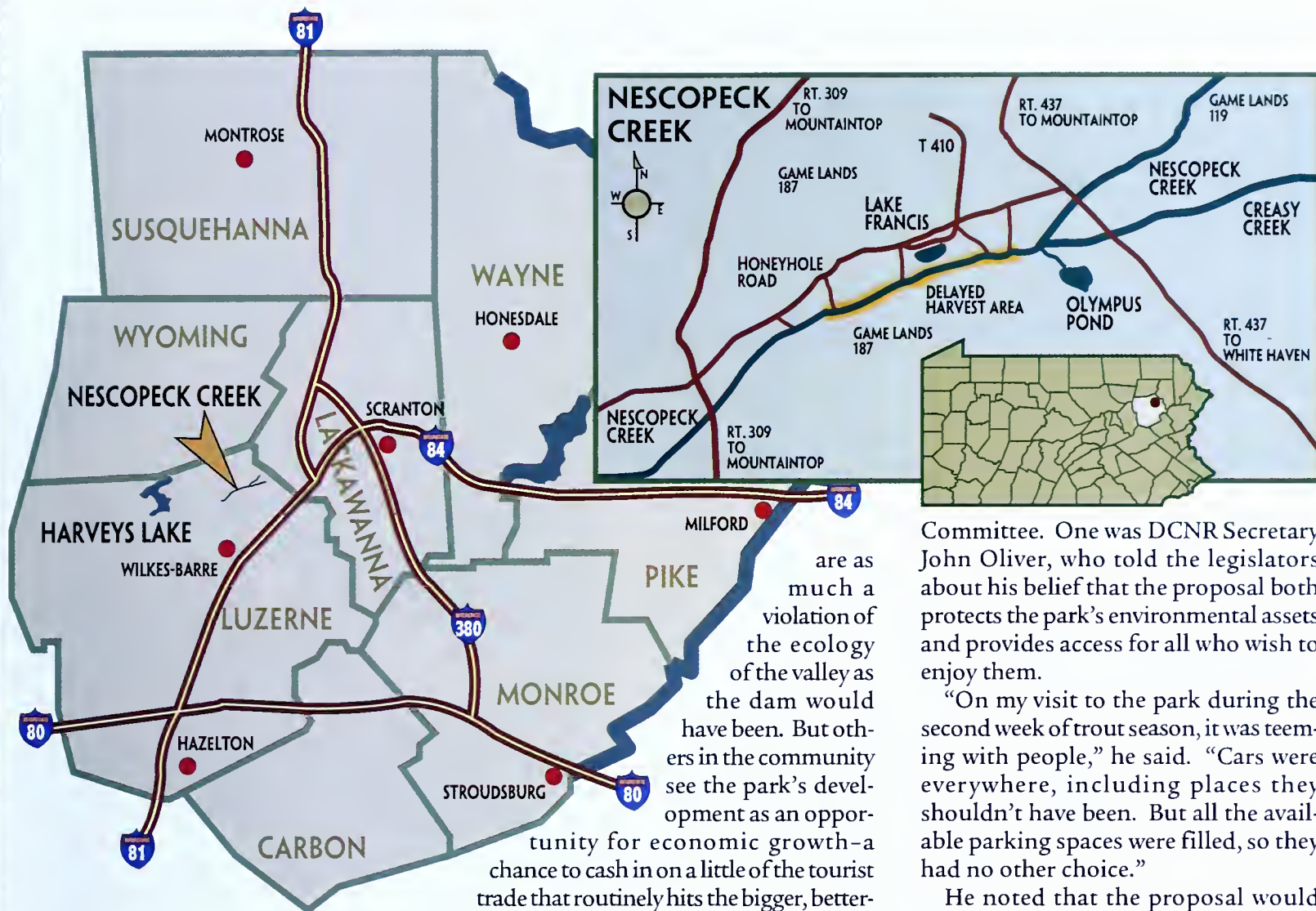
In the early 1970s, the state spent \$2 million to buy 163 properties and removed 41 homes and cabins. The valley was well on its way to be flooded to give us one more manmade lake. Then, Project 70 funding dried up, the blueprints were shelved and the area was managed as an unimproved state park. No welcoming signs were posted, no paved parking lots

were installed. All the state did was offer users an easily accessed wilderness experience in the heart of the rapidly developing Pocono Mountains.

In May 1984, the plans were dusted off, the legislature agreed to \$5.4 million to cover design and construction, and Senator Raphael Musto held a public hearing in his home county to reacquaint the public with the project.

Then Executive Director of the Fish Commission Ralph Abele stood opposed to the dam, decrying the loss of a blue-ribbon trout fishery, 5 1/2 miles of feeder streams with native reproducing brook trout and 200 acres of wetlands.

The Game Commission, the U.S. Fish



and Wildlife Service and a strong citizen contingent echoed the concern. One of the rallying volunteer voices was that of Jacqui Bonomo, who spoke up on behalf of the local Sierra Club chapter. The state came away willing to let the science prevail—the Soil Conservation Service and the Department of Environmental Resources assessed the effects of three choices: a large dam, a small dam and a dry dam. The study was completed in 1989, concluding that any of the three choices would create a “high loss of both terrestrial and aquatic habitat.”

Bonomo recently observed that one other element contributed to halting the dam. She said that public attitudes 12 years ago had shifted away from the earlier let’s-dam-it-all heyday when so much of our flat-water recreation was made. “The local public was placing more importance on accessibility to natural areas,” she said, rather than flooding them out of existence.

By the start of 1990, the dam was dead, but the notion of developing the park into something more wasn’t. In 1991, the Bureau of State Parks (now in the state Department of Conservation and Natural Resources) announced its vision for the park.

To some, the proposed improvements

are as much a violation of the ecology of the valley as the dam would have been. But others in the community see the park’s development as an opportunity for economic growth—a chance to cash in on a little of the tourist trade that routinely hits the bigger, better-known state parks in the area: Beltzville, Tobyhanna, Tuscarora and Hickory Run.

In its three-phase entirety, DCNR’s proposal calls for installing a swimming beach on Lake Frances (a nine-acre artificial lake originally built to provide recreational support for a proposed residential subdivision); developing two other day-use areas; erecting an environmental education center, modern cabins and the necessary sewer lines and other infrastructure; providing parking for 500 cars and 12 buses; and establishing overnight camping on 80 trailer sites and 20 walk-in campsites.

It probably took less than a minute after reading that proposal before some conservationists agreed: Round Two was begun. Letters were sent, calls were made, and one of the most important results of the effort was the convening of a public hearing. It might have been déjà vu for Senator Musto. One dozen years after he organized the first Nescopeck public hearing, the Senator convened another. The opportunity for public participation was given to the citizens, and they took the occasion to share their thoughts and personal knowledge.

In June 1996, 14 citizens testified before the Joint Legislative Air and Water Pollution Control and Conservation

Committee. One was DCNR Secretary John Oliver, who told the legislators about his belief that the proposal both protects the park’s environmental assets and provides access for all who wish to enjoy them.

“On my visit to the park during the second week of trout season, it was teeming with people,” he said. “Cars were everywhere, including places they shouldn’t have been. But all the available parking spaces were filled, so they had no other choice.”

He noted that the proposal would develop less than 2 percent of the park land mass, and that the three day-use areas would be on sites already disturbed.

Still, when Bonomo spoke, she received the only applause of the day. She also would have to receive the award for traveling farthest to testify. Now director of the National Wildlife Federation’s (NWF) Western Natural Resource Center, in Portland, Oregon, Bonomo still obviously carries the Nescopeck close to her heart. And she’s so convincing about the value of the land that NWF has encouraged her to continue her vigilance, even from 3,000 miles away.

“I admit to knowing the Nescopeck like I know my own face,” she told the legislators, “and I admit to being hopelessly in love with it.” In her sentiment that Nescopeck’s best use is as a place for solitude-based recreation, she stands with sportsmen like Gerard Schutz and Ed Zygmunt, two officers in the Northeast Division of the PA Federation of Sportsmen’s Clubs. “This is a beautiful area, and we don’t want the human presence to be so great that it takes away from the natural beauty of the area,” said Zygmunt.

In his testimony at the public hearing, Schutz made it clear that the sportsmen

NESCOPECK:ROUND TWO

don't resist limited development. "We agree with the center and limited trail development," he said. It's the cabins, camping and extensive parking lots that would overwhelm and possibly destroy the nature experience.

Some sportsmen believe that the impermeable surface parking lots will increase runoff during storms and cause flooding problems for downstream residents. They believe that over-development could bring the footfalls of so many people down on the biological diversity that now exists in this valley.

Richard Schwartz, president of the Western Pocono Chapter of Trout Unlimited, repeated the point to the legislative committee. "Many of its feeder streams contain native brook trout, other fish life, as well as aquatic life," he said of the Nescopeck Creek. "But they're [aquatic life] threatened by the proposed development."

"I am frustrated because I have always felt we had an opportunity to do something different in developing a state park around the ecologically intact part of Nescopeck Creek," Bonomo wrote in a recent letter to Oliver. "But what is being proposed there is uninspired."

DCNR's Edwin Deaton agrees with the sportsmen's observations about the wealth of the natural experience in the Nescopeck. "Everyone admits it's a special place, that it's different from all the other parks around," says the head of the Bureau's Planning Section. But he argues that the overnight accommodations are needed to allow users of the proposed environmental education center to stay for more than a single day.

Part of the scheme is to provide different venues for environmental education and interpretation. "Lake Frances is one venue; the Middle Day Use Area is where one can have access to Nescopeck Creek, and access to trails at the south side of the creek; and the Lower Day Use is immediately adjacent to glacial deposits. We're offering a blend of educational opportunities."

Deaton notes that the arguments among the citizens who want to maintain the relative pristine setting may not be as divergent from the state's proposal as they first seem. "My perception is that the difference of opinion revolves around the size of things. What they envision as sufficient is somewhat different from what we envision. I believe we're all headed down the same road," he says.

Maybe, but in the state's mind, that

road is paved. If there is hope for compromise, it may occur at a table set for the latest citizen's committee created by the state to offer public participation opportunities.

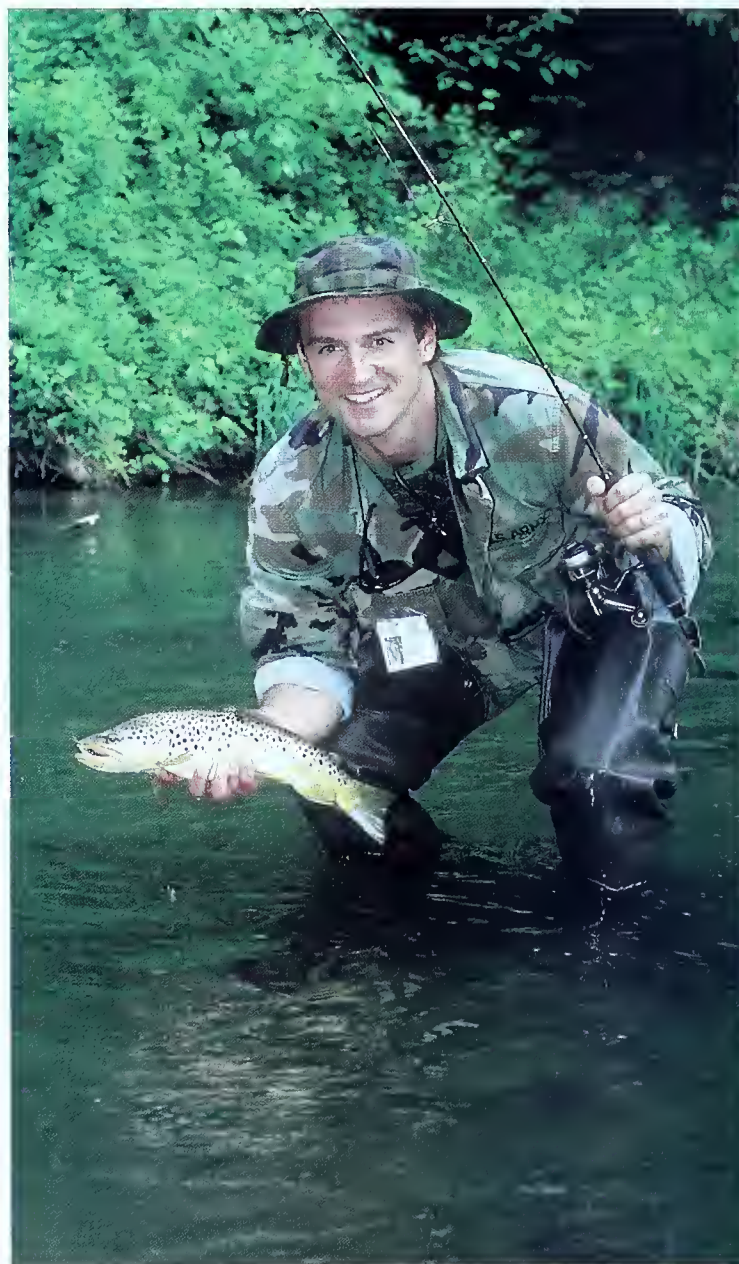
Oliver's testimony included a proposal to form the committee, and Senator Musto chose to follow through by inviting 10 opinion leaders—local officials, environmental and conservation group spokesmen, county and state agency representatives, the local chamber of commerce and a college professor to form a committee that "will establish a line of communication between the department and the people interested in the park." The first meeting was held last fall.

If there is one other lesson to be learned from watching a group of citizens who have cemented a committed position, it's that state agencies do consider all viewpoints when making sometimes tough decisions. "I've told the many people I've worked with on the Nescopeck that if we lose, it won't be for lack of trying," said Bonomo. "They've fought fiercely, and it's affirming to know that we're still able to move opinion."

What may help the process is that state officials respect the strong efforts of the conservation community, and as Bonomo said, "We give tremendous credit to Secretary Oliver and Senator Musto for creating the committee to allow local voices to be heard."

Schutz offered his own brand of philosophy for why he's worked hard for what he thinks is protection of the valley's biological integrity. "Compromise is the balm of politics. We're willing to give, and I think we'll get what we want."

He's hopeful, and attributes it to the thoughts of an historic Pennsylvanian. "I like what Ben Franklin said: 'The price of liberty is eternal vigilance,'" he says. "We're getting their attention." Any sportsman should do no less, he thinks.



WHAT ABOUT THE FISHING?

Fishing is one of the most popular activities at Nescopeck State Park, and the Fish & Boat Commission has maintained an active interest in the future of this park. Commission staff members attend meetings of the advisory committee and provide information to DCNR on matters related to fish and fishing. The Commission will continue to monitor changes carefully in angling pressure, fish populations and habitat so that we can make changes in fisheries management and stocking strategies for the stream and the lake. The Commission will provide formal input in reviewing permits for proposed development and will continue to provide more informal input at the request of DCNR and other state officials.

RADIANT ENERGY TROUT

by Vic Attardo



Wintertime stream trout fishing success depends not so much on water temperature but on the sun's radiant energy warming the fish.

For a couple of years now, I've been conducting a little experiment regarding winter water temperature. As part of the inquiry, I wanted to see how much the mercury actually climbed in a frigid stream during the "heat of day."

I started this research because I believed—since it is common fishing lore—that the temperature of a stream increases as the sun warms the water. After all, this ambient warming supposedly turns trout on to make them feed on a cold January afternoon, and then makes them go to bed early as the water cools with the setting sun.

Misconception

It's a nice theory. The trouble is, it's not based on facts. True, trout fishing in the middle of winter is usually best during midday. After Santa parks his sled back at the North Pole, I don't even think about hitting the water until at least 10 in the morning, or later. I definitely want to be on the creek at noon. I've tried to catch trout around sunset during the frozen months and I have had little success. But on a sunny winter day, I can do pretty well between 11 and 2. In late spring and summer, I take a stream-side siesta during those hours.

However contrary to the fishing fable, I've learned that this midday achievement does not occur because of an increase in water temperature. Instead, I now realize that where I search for trout, that is, in a sun-lit section of a stream, is the determining factor in my winter success, or lack of success.

The evidence

I came to the theory of winter location by studying and fishing my favorite wild trout streams in the southeast part of the state and also a number of popular streams in the central part of the state.

In one test on a January day I took water temperature readings on a southeastern stream in two locations and at four different times. The first site was a three-foot-deep pool below a wide, shallow riffle. The entire run was canopied by tall, heavy growth so that even

RADIANT ENERGY TROUT

in winter the vegetation still presented a moderate cover. Also, one side of the bank was bordered by a steep, rocky slope that never seemed to enjoy the direct rays of the sun. In other words, during the orb's brief track across the winter sky, this entire area received little light.

The second spot was a hundred yards upstream. It too was a pool about three feet deep. Between a shallow riffle and the slower water was a nice run with a very fishable gut, just like the first location. However, a change in bank structure and sparse vegetative cover allowed this area to receive full and direct sunlight.

I took temperature readings at the two locations at 10 a.m., noon, 2 p.m. and 4 p.m., discounting, of course, the short time it took me to walk back and forth from one spot to the other.

The water temperature at both locations at all times measured a frigid 34 degrees. The temperature did not increase one iota during the four readings, or at least an iota my thermometer could register.

Yet, between noon and 3 p.m., I caught four wild brown trout in the sun-clear area and at another similar site. I didn't have a single hit in the shade-covered waters, and in two other spots just like it.

Clearly, a change in water temperature had nothing to do with the trout's reaction to my fly—there *was* no temperature change. Instead, the trout were active in the sun-lit areas because their cold-blooded bodies felt warmer. Their metabolism increased and they went on the feed.

For the record, I am not trying to debunk the affects of rising and falling water temperatures on trout activity—or on any species of fish. I live and die by the thermometer. But I believe we have been misinterpreting some of this information when it comes to winter fishing.

Weird science

In general, light sensitivity plays a major role in governing the time of day or night in which fish are active. In a few cases, members of the piscatorial clan may shift from a day-active to a night-active lifestyle. For instance,

sculpins, which are nocturnal during the summer months and a major food source for trout, deviate to a diurnal mode in mid-winter.

Large brown trout are known to wait until dark before feeding in summer, but I have caught some of my largest browns in winter under a bright sun.

If trout are active in the daytime between December and February and less so in the warmer months, then clearly their winter lives are being governed by a need to feel the effects of light in a cold environment.

Some years back, I watched a fence lizard crawl out of its night time hole and stiffly move to the top of a post. It was a cool day and the air temperature did not rise above 50 degrees until well after noon.

Between the time I first spotted the reptile and when it finally scampered away, about a half-hour later, the sun had struck the fence post like a spotlight at a beauty pageant.

As the light intensified, the creature began stretching to its morning exercise program, and when it felt invigorated by the radiant energy of the sun—its body tem-

perature, not the air temperature, having warmed sufficiently—it suddenly ran off.

The same thing happens to a trout in a sunny location.

Trout are cold-blooded, ectothermic creatures, and their internal temperature fluctuates because it is influenced by the temperature of their environment. The

internal temperature of endothermic creatures, or warm-blooded animals, is a constant and relatively independent of its surroundings. Hypothermia and heat stroke are two important exceptions.

When it comes to water temperature below 45 degrees, trout become pretty lethargic. This decreased activity is a direct effect of stream temperature on their bodies. For the majority of winter days, a limestone stream will run between 33 and 38 degrees, well below a trout's ideal range. But trout swimming in the sun on a winter's day will experience an increase in body temperature and, correspondingly, an increase in activity.

Its rising temperature influences such internal functions as the rate of secretion, the activity of digestive enzymes, the absorption rate of digested food and the muscular activity of the digestive tract. In other words, the trout, like the lizard, is getting a nice glow from the sun.

Confirming the theory But enough of biology. What does this mean to the fisherman?

Traditionally, anglers have been taught that they must fish the deepest pools in winter to catch trout. On one of my favorite southeastern streams, Bushkill Creek in Northampton County, I see fly fishermen standing up to their chest hairs each winter in one popular pool. They methodically work nymphs upstream on a short line, just as they have been told to do over and over again. I have watched some of them for hours and their catch rates can be described as low, at best.

Then there are those anglers who walk upstream from the pool and fish the edge of a moderate riffle that is only about



knee-deep or thigh-high. Now everyone knows there are no fish in fast riffles during the winter, but these few fishermen usually manage to catch a couple of trout on some of the coldest days.

Upstream, a little farther from this "hot spot," is another moderate riffle. It too is about three feet deep in the center gut, but on the slow current side it doesn't have quite the same sand bar as the first riffle. It also has a steep slope on the southeast bank with a jungle of wide sycamore trees growing on both sides of the stream. The first riffle has flatter banks and the bushes are sparse and empty in winter.

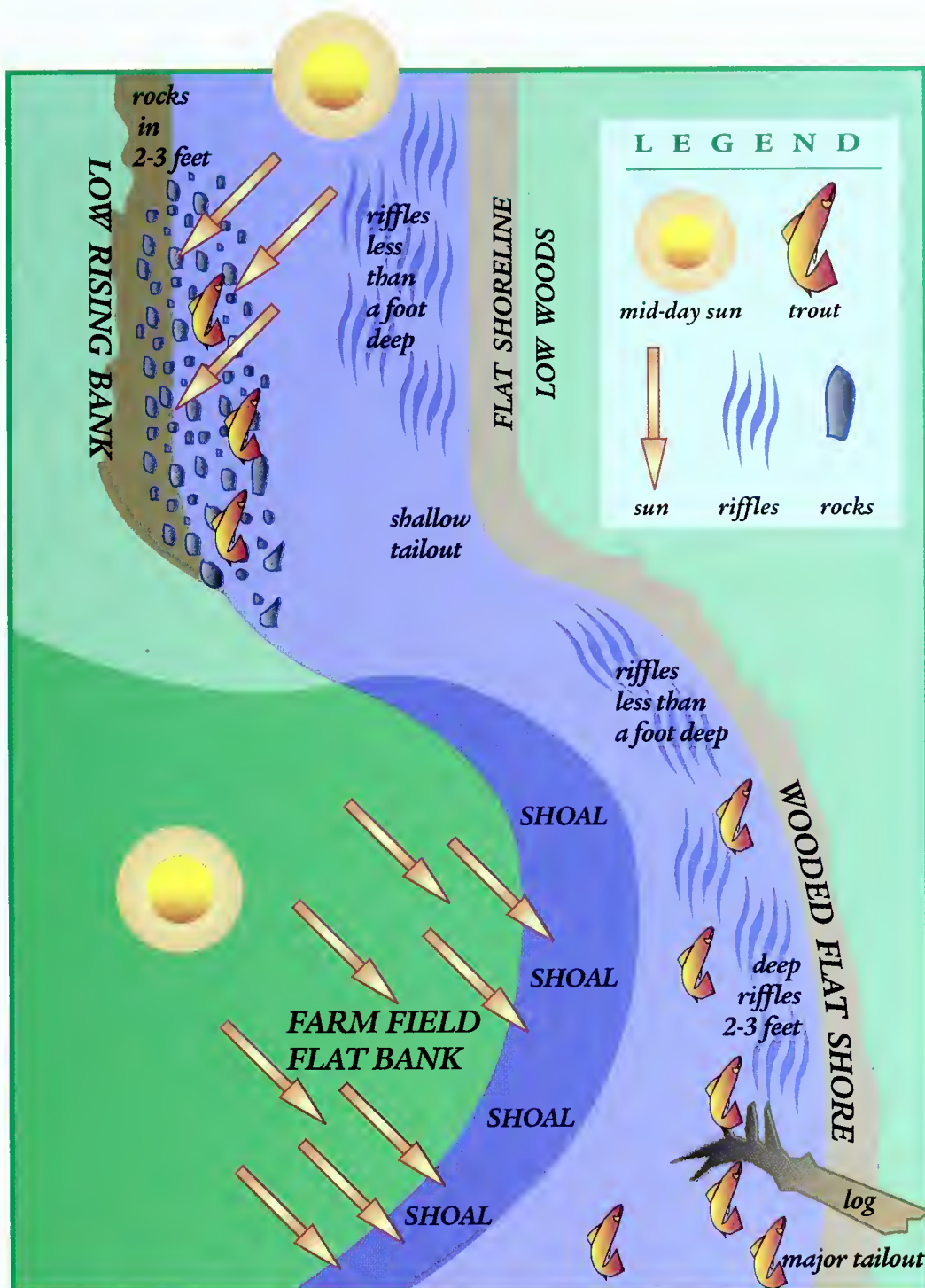
Even though I and others have managed to take a few trout from this second riffle, it is not our preferred spot. Instead, we get more action by standing in the glow of the sun and fishing to trout that are feeding on the edge of the riffle in shallow water. These trout are also basking in the winter sun.

Having some healthy self-doubt about this sun thing, I went out to Spring Creek in Centre County with an angler who has been fishing that stream for years. This angler is a terrific night fisherman who has taught me plenty about catching big browns in central Pennsylvania under the glow of a summer moon. But he has little experience with winter fishing and is only on his first set of 5mm neoprenes.

Before we left on our trip, I made a pact with him. In exchange for dinner and gas money, he could fish only in areas of the stream where I told him to fish and only when I told him.

After leaving in the middle of the night we arrived at Spring Creek about 8:30 in the morning and I promptly crawled into the back of the truck and went to sleep. I directed him to the area above the "new bridge"—a spot that anyone who fishes this creek knows well. In winter conditions, the stream is no more than three feet deep in the riffles preceding the bridge. One bank is nearly level with the water while a road with a few homes and a small rising hill parallels the other bank. I set "Joe" to work in this area and said I'd wake up about 10 o'clock. By 10, Joe had only one strike.

We then ate brunch and went back to the same section of stream about 11 o'clock. By this time the sun was on the water and we could see a small cloud of midges hovering beneath a large sycamore. Joe nymphed and caught three nice browns within an hour. I used a sculpin imitation and caught two browns, and missed two others.



I then pulled us out of that part of the creek and we drove downstream to where the trees are as thick as the Enchanted Forest. Even though the sun was practically overhead, very little light was striking the water. We fished through a couple of dark holes where Joe catches some beautiful fish in the spring and summer, but he had just one hit. I got nothing.

It was about quarter to 2 when we got back to the riffles and pools above the new bridge. The air temperature was 37 degrees, and the water temperature was 5 degrees Celsius, not one degree higher than when we had left it earlier that day. We were cold but the sun was on the water and we resumed our fishing.

This time, we both had hot hands. Working through the same section we

had fished earlier, we connected with four trout apiece. We fished slowly and methodically until about 4 p.m., when we realized we had not had a bite or seen a trout in the last 30 minutes. All Joe said on the long drive back was, "I think there might be something to this sun thing of yours."

In other excursions to his favorite waters last winter, my partner paid attention to the presence, or lack of, sun on the water and said he had corresponding results.

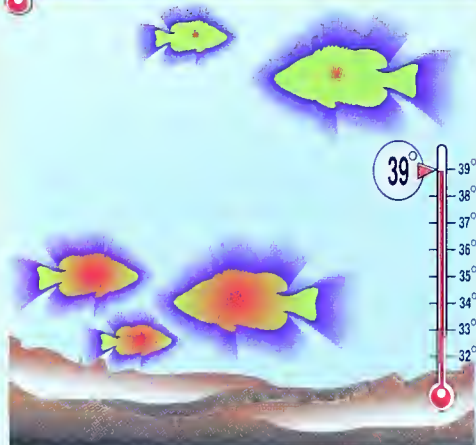
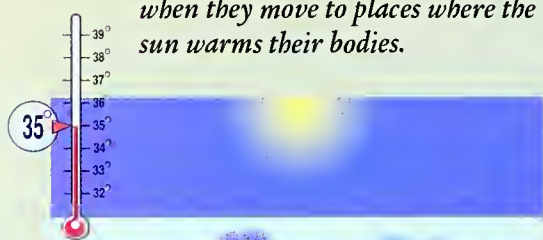
Practical terms

When searching for winter trout I no longer spend time in deep pools. For years I never had much luck in these places, so why bother? Besides, I don't like to be chest-deep in cold water no matter how thick my waders.

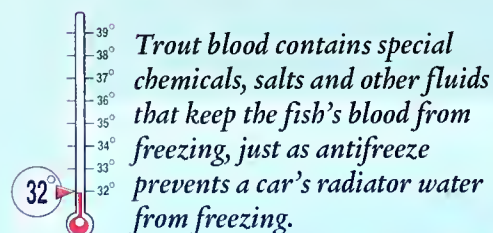
MORE RADIANT FACTS...



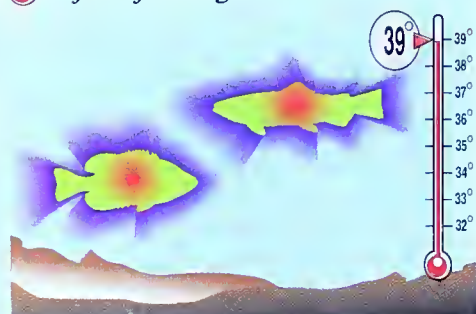
Cold water slows a trout's metabolism. Trout become more active when they move to places where the sun warms their bodies.



Trout and other fish, insects, reptiles and amphibians move to, and actively seek, places where the water may be warmer.



Trout blood contains special chemicals, salts and other fluids that keep the fish's blood from freezing, just as antifreeze prevents a car's radiator water from freezing.



I now begin my hunt for winter trout in sunny, shallow locations. The basic criteria is that a section of a stream should get as much light as possible during a winter's day and it must receive the midday sun with little interference from surrounding hills and vegetation.

At the same time I realize that not all sunny locations are equal. Those areas that are very shallow, such as thin riffles and pools less than 12 inches deep, are not on my list of preferred spots. But if the riffles are between one and three feet deep, and particularly if there are a few depressions in the riffles, these are the zones I target for my winter fishing.

Another key location is a shallow, sunny eddy containing large rocks. Here I fish the rocky area, particularly the pockets behind the structure and the edge of the riffles along the rock line. Trout still want some form of cover, and the rocks offer good protection while still permitting them to bask in the sun. Finally, I fish flats and tailouts that are at least two feet deep, but not much deeper than four feet. If the tailout is thin and wide and the subsequent riffles also less than a foot deep, I don't bother with this location on a bright day.

If I want to fish dry midges instead of nymphs, the flats are the first locations I seek. Sometimes I've seen where a flat may be in the sun but the trout taking the dries is in a patch of shade. Chalk this up to not wanting to feed while looking up at a bright light.

What's for dinner?

When a trout is working in a sunny winter location, it is almost invariably feeding on minnows or nymphs. But the classic insistence of a large, black nymph for winter fishing is not always the best advice. For years I fished variations of stonefly nymphs almost exclusively. Lately, however, I've found that a smaller, lighter-colored nymph such as a Bead Head Pheasant Tail, Walt

Young's Golden Pheasant Tail Nymph, or an Olive Damsel Fly Nymph is a better winter choice.

But if I had only one type of fly to use in winter, it would be some form of a streamer or a sculpin pattern. Sculpins are active on sunny winter days and trout are willing to take a swipe at one, knowing it's a worthy meal. In addition, the mild brown colors of most sculpin patterns are a nice natural mix and don't frighten wild fish in low water. Always try to match the shade of your sculpin pattern to the stream substrate, but make sure it has a tinge of red at the gills.

Another good choice is the Heavy Metal Minnow, size 12, in either silver or gold. This simple creation is a Woolly Bugger with a light-gray marabou tail, silver metallic tinsel chenille and a dun or grizzly palmered hackle for the silver version. The gold pattern uses an olive marabou tail, gold metallic chenille and grizzly hackle. Use red and pearl Krystal Flash in the tail and try a red thread head. I turn to the Heavy Metal Minnow when the stream doesn't contain many sculpins.

As for presentations in winter's low water, I prefer the long-line down-and-across method. As the fly makes its swing through the current, I concentrate on the end of the fly line where it meets the permanent butt. At the first sign of a pause in the drift, I strike.

Winter fishing may not be as productive as fishing a mayfly or caddis hatch. For one thing, a stream filled with melting snow rarely produces, no matter how bright the sun. But fishing for trout in the middle of winter gets me out of the house and gives me a chance to work on strange theories, like these.

As for the trout you may have caught while a blizzard was raging around you, I have no explanation at all for that. But give me time.



MUD, FLOOD, and FISH

by Linda Steiner



photos Robert L. and Linda Steiner



Five point five inches, they said. That's how much rain fell in northwestern Pennsylvania in a 24-hour period this past July. Actually, all the rain fell between midnight and daybreak, because I woke through the night to the sound of the downpour pummeling the roof. By dawn it was done.

The next morning, the visitors at my home and I surveyed the ruin of the dirt road in front of the house. Half of it, soil and gravel, was washed away, leaving a six-inch drop from the still-usable side. That was minor damage

Sugar Creek, Venango County, a stocked trout stream

compared to what had happened elsewhere in the region.

The local radio station said that many county roads were out and bridges were washed away. The trout creek below the house, usually less than a dozen yards wide, had swelled to an angry, brown river, hundreds of yards across. For my guests, fishing was out of the question. My out-of-state friends surveyed in awe what the day before had been a summer-low stream and said, "Do you always have rains like this out here?"

MUD, FLOOD and FISH

No, gully-washers of that magnitude come rarely, but serious thunderstorms do arrive often. Not every rain means the creeks will rise, but an intense, short storm or a prolonged deluge, especially when the ground is already saturated or is baked cement-hard from summer drought, will cause the streams to come up and go brown.

Flood and mud can happen any time of year, not just during the thunder weather of summer. Spring thaw is traditionally flood time, when early rains combine with above-freezing temperatures and melting ice and snow to overload streams. Last January, during the statewide "Flood of '96," a friend had ice chunks three feet thick and Cadillac-sized in his front yard, plus water in his basement. Ice floes, riding and tumbling in the high water, had jammed on the turn in the creek behind his home. The resulting dam caught ice and debris and backed up the stream flow. His damage was slight compared with media reports of flooding downstream, as gathering waters put the Allegheny and Susquehanna well above flood stage, making the state capital virtually "at sea."

Summer storms, spring break-up, and then there are hurricanes. A week before the big July rain hit us here in north-western Pennsylvania, we sat dry as the eastern part of the state was drenched by a hurricane that had moved up the coast. For an inland state, Pennsylvania gets regular hurricane rains. Many remember the infamous "Agnes" and "Eloise" storms of the early 1970s, with Wilkes-Barre underwater, parts of Route 80 closed, and mountain-county streambeds gouged and ripped 10 feet above normal level. Hurricanes bring wind, too, adding trees and debris to the water flow, which becomes battering rams against banks, knocking them loose and adding more mud.

What happens to the fish?

But what about the fish? If you are not caught up, literally, in the flood, your concern as an angler might be, "What's happened to the fish?" Obviously fishing is postponed until the creeks return to their banks and clear up a bit. But will the fish still be there?

An old-time fisherman's adage is to "fish on rising water" or when the water's "a bit off-color." There is good sense to this. As the rains wash the land and what grows on it, they pick up extra booty. Insects and other invertebrates flush into the stream, adding a slug of food. Predatory fish become active on the rising flow, feasting on what washes in and on the bait fish that are also frantically feeding on the added chow. There are many

fishermen's tales of lunkers, too shy, too smart, too nocturnal, that couldn't be caught until they got careless, and greedy, when the rains came.

But what if those replenishing rains don't quit? What happens when that "little off-color, little bit high" passes the point of sanity, when the stream succumbs to the madness of flood?

Flood brings with it two problems: mud (silt) and velocity/volume. These are conditional evils and there is a beneficial side to both flow speed and in-wash. But for fish, mud and large amounts of fast water mostly mean trouble.

How much trouble? When you see your favorite trout stream become a monstrous, muddy version of its normal self, should you give the sport up for golf? Have all the fish washed away to the Gulf of Mexico, or at least to the next county?

Although fish do move, by choice and by accident, caught up in the flood, the apparent extreme velocity of the flood doesn't mean all the fish have been sent down the river.

A natural stream is not a featureless sluice. But there are places in Pennsylvania, especially in towns, where streams have been relegated to concrete ditches. It's easy, looking at a creek raging through one of these cement troughs, to believe that all fish and aquatic life, like minnows, crayfish or caddis flies, that were in the manmade section were scoured out by the flood. Even in the concrete spillway there are rough and uneven, chipped or protruding places on the walls and bottom, creating miniature pockets of slower water, if not actually calm eddies in which something small can ride out the flood.

Then consider what happens in a stream that flows naturally, with a full complement of riffles and runs and holes. Its bottom and banks are studded by rocks, boulders, cliffs or ledges; it has deep pockets and pools; and its course is rerouted again and again by winding turns, making stretches of slacker water. Sunken trees, root systems and undercut banks also add character, and as fishermen know, places that hold fish.

Unless these features are ripped up and washed away by the flood, they continue to provide sanctuary for fish and other water life, even when there is a lot more water flow in the stream.



Streambank collapsed after high water. Cherrytree Run, Venango County



Red Run, Elk County. This kind of small stream can be damaged by road siltation.

Flood!

Without the side confinement of artificial walls and dikes, the volume of floodwater in a stream is only going to reach the top of the bank. Low spots in the creek sides up and down its course allow the water to spill out onto the surrounding land, the stream's flood plain, dissipating volume and energy. The story of the floods of the Nile fertilizing Egypt each year is reenacted wherever streams overflow onto adjacent ground. The waters slow and drop their load of silt and soil.

Fish may occasionally follow or be washed into these calm water areas, which are, in reality, out of the stream bed altogether. They might be swimming through forests, fields, maybe even someone's backyard. If it floods at the right time, you might even see carp spawning in a cornfield.

If the fish don't find their way back to the creek bed with the receding waters, and become landlocked, raccoons, minks and other predators get a bonus meal.

Rivers and creeks are constantly working to take the shortest path in respect to gravity. That is, they "want" to fall as quickly as possible. A creek hitting the bank at an outside bend is going to work at cutting out that bend completely, making the route a straight line.

Bends help form pools and riffles as the stream digs out and deposits, slows and speeds up. These add to the attractiveness of the stream to fish and aquatic life by creating a variety of habitats, and make it pause in its haste to the sea. At the turns the creek, big with runoff, eat away its banks, removing mud, gravel and rocks, and dropping them again elsewhere.

Floodwaters can mobilize pebbles, rocks, even boulders, according to the flow's volume and velocity, but they also work to flush out spots in the stream that were silted by previous run-off. This flushing can gouge holes and runs deeper, clean out riffles, and improve the spawning habitat for many types of fishes, as well as stream insects and other invertebrates.

Trout are just one of the fishes that requires clean gravel, with empty spaces between the particles, for spawning. Shiners, darters, dace, sculpins, redhorse suckers, chubs and others also need the room between the rock pieces to hold and protect their eggs and young. Not only can the developing fish hide there from predators, but water, with life-giving food and oxygen, can circulate through the rubble. If mud and flood don't occur in prime nesting time for the fish, if instead the high water washes away accumulated silt before the fish spawn,

to the overall health of stream life the heavy water is a plus.

A streambed scouring may destroy some invertebrate life, or loosen and flush it downstream, but it can also make conditions better for those creatures that had a better grip, through its silt-sweeping ability. Case caddis fly larvae, with their tubes cemented to rock, stay put unless actually scraped off. Flattened stonefly and mayfly nymphs can cling to stones in fast water—they're built for it. When the current's rushing by too fast the nymphs can scurry to the downstream side or find slacker water behind some bulge on the stone.

Settling silt

When water loses speed, it loses its ability to carry silt and drops the load, gravity taking over. Where silt falls it can not only degrade or destroy spawning sites, but can suffocate insects and other invertebrates, fish eggs and even the fish themselves, if the mud load is severe enough. A heavy coating of silt, at the wrong time, can prevent young fish from emerging into the stream from their gravel nest. A slug of silt may not completely eliminate that year's spawning, that "year class" of fish, but it can reduce it dramatically. Enough mud years and overall fish populations can suffer.

When flood-carried silt settles out, it's

often “out of mind” to the angler. It’s no longer seen, unless the fisherman notices a mud bar buildup or a pool that’s become shallow and mucky. Mud is most obvious when it makes a normally glass-clear stream look like coffee and cream. The flow may take days to slow enough for the mud to drop out, so what do the fish do in the meantime?

Some types of fish are more susceptible than others to the effects of suspended particles in the water. Fish constantly filter water through their gills, absorbing the dissolved oxygen, so silt in the flow contacts their delicate breathing structures. The particulates can interfere with respiration and are abrasive to the gill filaments. Silt can adhere to the mucous covering of the gills, which can become inflamed. Breathing can be severely affected, especially in sensitive fish like trout. Trout can also die from exhaustion trying to avoid the onslaught of silt, and in doing so expose themselves to predators.

Silt also carries bacteria. If what was detected in Pennsylvania Fish and Boat Commission hatcheries, that hatchery trout raised in turbid water had more bacterial gill infections than trout raised in clear water, is true for the wild, then mud can literally make fish sick.

Muddy water is difficult, if not impossible, to see in, and gamefish, like trout, that rely primarily on sight to feed are handicapped. With their innate requirement of cold, clear, clean water, trout are at or near the top of the scale of suffering from stream-born silt. Catfish and carp are on the lower end. Carp are an extremely resilient species, tolerating almost anything Mother Nature or people throw at them. Like the catfish, they have sensitive barbels around the mouth that help them find their way and let them taste as they go. Through their lateral lines, fish also sense water currents and the movement of other fish, so eyesight isn’t everything.

We can’t stop the rains from falling, even if they do so at inopportune times and in inordinate amounts. Fish and

other aquatic life have persisted, even developed into the forms they are today, through the high and low extremes of their water world. There have been and always will be hurricanes, heavy rains at

especially dirt roads, and you have mud along with flood.

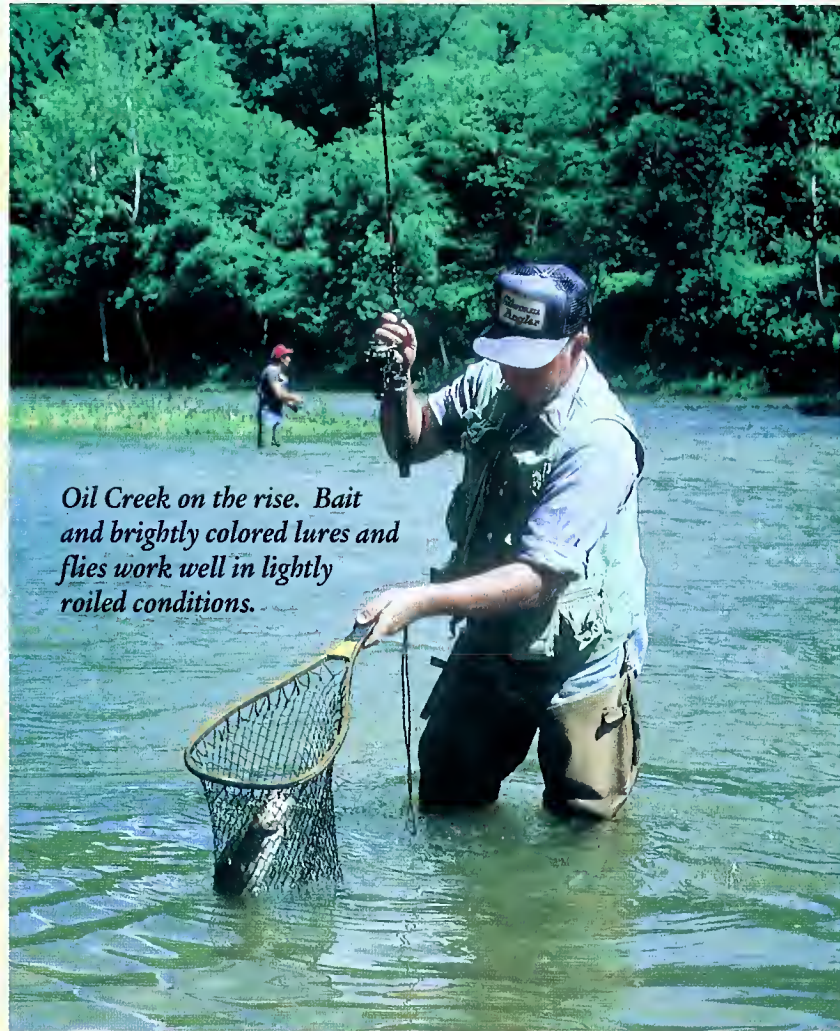
Dirt roads are especially insidious. When we travel to the “pristine” Big Woods counties to fish, dirt roads seem part of the rural charm ...

until it rains. Pennsylvania has over 23,000 miles of dirt and gravel roads and although not all of these run along streams, even mud mobilized on a mountain-top has to go somewhere. On improperly maintained roads, the road itself can become the drainage conduit, washing itself into the stream. Or the dirt-bottomed drainage ditch alongside the road can flush too directly into the stream. A back-country dirt road may make getting to the stream easier, but when it rains your pathway to fishing puts mud into a creek that’s not meant to get it. The road you take to trout fishing may even be destroying that fishing.

Some steps are being taken to correct that, primarily through education and demonstration of better road maintenance and drainage techniques (not high-walling banks or di-

verting ditches directly into streams), the use of harder, less erodible road surfacing (like limestone or recycled synthetics) and the pursuit of funding for it all (possible legislation). Because Potter County has so many dirt roads and, with its many wild trout streams, is a mecca for fishermen from all over the state, the degradation from road mud was especially noticeable to concerned anglers. Pennsylvania Trout, the state council of Trout Unlimited, a national coldwater and trout conservation organization, has been involved since the early 1990s trying to lessen road sediment in trout streams. In cooperation with the Dirt and Gravel Roads Task Force, the trout group surveyed 66 counties, identifying the source of the sediment going into the streams—whether it’s the road, banks or adjacent land use—and finding out which spots in the state are the worst and should have highest priority for correction.

By volume, sediment is the greatest source of pollution in Pennsylvania. And



Oil Creek on the rise. Bait and brightly colored lures and flies work well in lightly roiled conditions.

ice-out, and mid-summer thunderstorms that drop buckets overnight. But has there always been this much mud?

Silt in streams is largely correctable, because it’s mostly the result of what people do on the land. True, an extreme storm and a riverbank geology that includes loose silts and gravels have probably always sent some mud downstream. But a stable rock streambed, with vegetation-stabilized banks, within a forested watershed, produces very little discoloration at high water. If you doubt that, visit one of the wooded headwaters still in existence in the state today—though diminishing in numbers—where the leaf-strewn forest floor’s intact, the streambanks are mossy and there are no nearby dirt roads. The run-off of heavy rain can be clear.

Mud along with flood

But add manmade disturbance, cleared or cultivated land, eroding highway cuts, unreclaimed timber trails, and

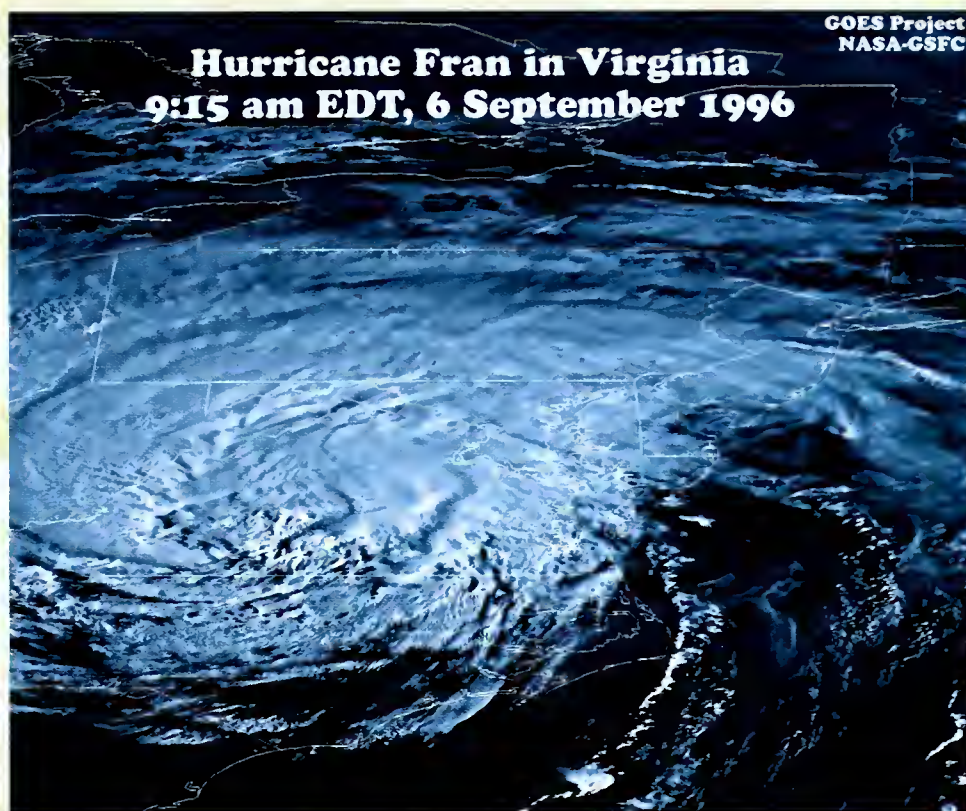
stream siltation is a prime pollutant of the Chesapeake Bay, according to the Chesapeake Bay Foundation, a group trying to protect and improve that estuary. The Susquehanna River and its tributaries drain almost half of Pennsylvania, carrying whatever washes in, and ultimately entering the Chesapeake. One way to reduce the amount of silt going into the water, says a Chesapeake Bay Foundation panel, is to reserve forested buffers along streams and greenway corridors, separating open land and erodible fields from the waterway. Woods, and to a lesser extent, a grassy area or low-vegetation buffer, filter and hold the sediments before they get to the stream. The Foundation is working on refining the idea, including offering incentives to landowners, since most of the watershed is privately owned.

Better timbering, oil and gas, and coal mining practices can, and are, helping to lessen the mud load of runoff from these operations. It just takes industry cooperation, education and compliance with environmental regulations. Retirement and reseedling of logging trails and landings, and grading and reseedling after oil and gas well drilling are especially critical when these businesses are working in fragile upstream locales—wild trout country.

Role of wetlands

To reduce the damage of flooding, wetlands should be preserved. How can a swamp help a stream? By receiving and holding back water that overflowed from or would otherwise have reached the creek too quickly. Wetlands are nature's catch basins. From wetlands, water that is caught and stored is released to the stream slowly, after the flood is over, helping to maintain creek flows during dry periods. Even part-time, seasonal wetlands are valuable, these low-lying areas gathering creek overspill after storms or winter melt, but drying out most of the year.

Where river banks have eroded, there is help available. From here in Pennsylvania's northwest, with its French Creek Project, to the southeast, with its Pequea-Mill Creek Project, various government agencies and sportsmen and conservation groups are working with landowners to stabilize and replant streambanks. Other problems have been caused by incorrect agricultural practices, like allowing livestock to walk all over the stream in their pasture.



This NASA satellite view shows Hurricane Fran, centered in Virginia, pouring copious amounts of rain on Pennsylvania. For an inland state, Pennsylvania gets regular hurricane rains. Many remember the infamous "Agnes" and "Eloise" storms of the early 1970s, with Wilkes-Barre underwater, parts of Route 80 closed, and mountain county streambeds gouged and ripped 10 feet above normal level. Hurricanes bring wind, too, adding trees and debris to the water flow, which becomes battering rams against banks, knocking them loose and adding more mud.

Cattle and other livestock wear down the edges of streams and trample and kill the bank vegetation. This enables the creek to wash away its own banks, becoming wider, flatter, shallower and less likely to hold fish, as well as adding a shot of silt downstream with storms. There is assistance in information, manpower, materials and funding to help farmers fence their livestock out of streams, while still providing a watering source. Although the U.S. Fish and Wildlife Service's "Partners for Wildlife" and the Game Commission are the agencies coordinating stream bank fencing statewide, you can begin by contacting your county conservation district, listed under county government, to get in touch with the effort.

If you're not a farmer, but own, as I do, land along a stream, you can help your own fishing by not diking (part of my land is in the flood plain and acts as a seasonal wetland) and by keeping the streambank wooded or brushy. The

landowner upstream of my ground began clearing his stream edge, to extend his manicured lawn right down to where the fish live. I told him that it was the brush and trees that were preserving his land, acting as a cushion when floods hurtled ice chunks and logs at it. Vegetation was holding the banks in place, but by removing it, as he was doing, his ground would probably soon be mine. He let the creek edge regrow.

Waters will rise and fall, creeks will change their course, fish numbers will wax and wane with what happens in their home. We can make floods easier on the fish and the stream, less violent and muddy, by manipulative techniques, like fencing cattle out and doing a better job on dirt roads, and by keeping hands off, not filling in wetlands and letting the forest grow to the water's edge.

Rains will come, snows will melt, hurricanes will blow in and over and out again. Eventually, the sun will shine and it'll be time to go fishing.



If I Had Only Four Dry Flies

by Charles R. Meck

For decades I carried a heavy metal fly box with me on each fishing trip. I loaded that box with 500 to 1,000 patterns, maybe 200 different ones, fearful that I wouldn't have the correct fly with me when I needed it. Hatch or no hatch, I carried all those patterns with me to the stream. On an average night when no hatch appeared, I might try 10 different patterns. The more frustrated I became, the more patterns I used. All totaled throughout an entire season I'd pound the surface with maybe 100 different patterns in maybe four or five sizes.

More recently, I've limited that number of patterns I carry to a more manageable few. Why? George Harvey has often said that he could match many of the hatches in Pennsylvania with four or five patterns. Which patterns do you need? When you're matching hatches and you prefer fishing dry flies on Commonwealth streams, you should always carry with you several sizes of Adams, Light Cahills, Quill Gordons and Blue-Winged Olive Duns.

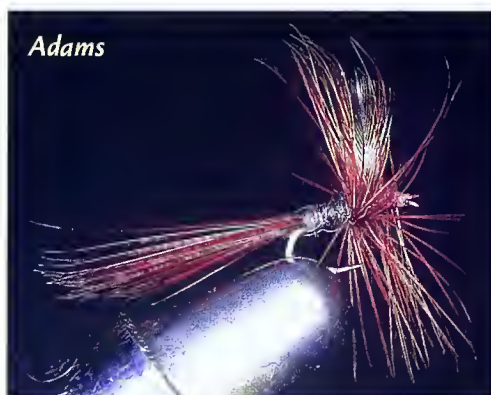
Why do these particular four patterns produce, especially when hatches appear? Let's look at the four and see why they work throughout the entire season.

Adams

The Adams is a top producer throughout the summer. From June through August, if you prefer fishing on top, the Adams will catch trout. I know many fly fishers who use it almost exclusively.

There are reasons why an Adams works so well. Look at one of the best hatches, the slate drake, that you'll see on many trout streams throughout the Commonwealth at that time of year. I've fly fished on most of the good trout streams of the northcentral part of the state and I can't think of one of them that doesn't have a good slate drake hatch. Look at the rocks

on the Loyalsock just north of Williamsport and you'll see nymphal shucks of these drakes lining the rocks along the shore. Examine the banks and rocks along the shore on Mill Creek, 20 miles north of Mansfield, and you'll see evidence of slate drakes that appear throughout much of the summer. Just about every evening from late May through July you can see this species emerging on many other Pennsylvania streams. A second generation of the same species reappears again in September and early October on many Keystone trout streams. If you calculate the number of days that you'll find slate drakes appearing on any given stream, it would be over 50 days of the fishing season. So if trout see this hatch that many



days, don't you think a dark gray-bodied fly, very similar to the body of the slate drake, would produce?

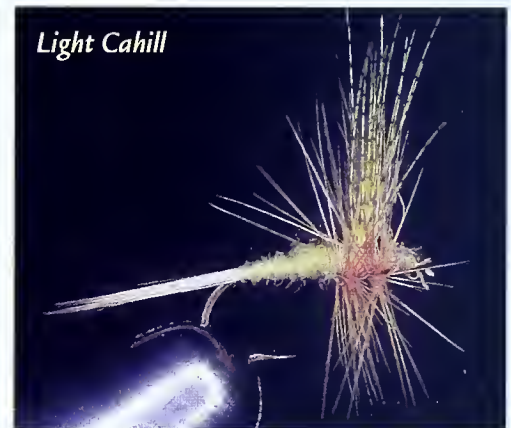
I'm convinced that one of the reasons the Adams works so well during the summer is because it closely resembles the slate drake mayfly. Look at the Adams dry fly and the slate drake mayfly. You'll quickly note that both have dark-gray bodies and cream to dark-brown legs.

I've often used the Adams on those summer trips. It has consistently produced for me on those early summer

evenings when other patterns fail. I usually carry Adams patterns in sizes 12 through 18. The smaller sizes copy the blue quills, so common from opening day through the end of the season.

Light Cahill

What dry fly fisher would be without a good supply of Light Cahills? I have a fond memory for this pattern on Elk Creek in Lycoming County. I fished over my first hatch on that stream more than 30 years ago. At that time I didn't have the variety of patterns I had later. I carried a few Adams and Light Cahill patterns. One evening about 7:00 p.m. at the section where Hoagland Branch enters Elk Creek, every trout in the pool began feeding. The mayfly that brought the trout to the surface looked like a light cahill, so I tied on one of only two size 14 Light Cahills I owned.



That evening—that incident—forever made an indelible impression for the rest of my fly fishing career. Ten heavy trout took my first pattern before it looked like a piece of thread tied on a hook. Five additional trout took the second pattern before the hatch ended and the trout quit surface feeding. That one incident was enough to make me a believer in a Light Cahill pattern. I carry these patterns in sizes 12 through 20.

George Harvey often talks about the time he saw a green drake hatch on a small stream and he left the car without any of these large patterns. George tied on a size 12 Light Cahill that day and landed a 17-inch streambred brown trout on the small stream he fly fished. So the pattern works even when the drake appears. The Light Cahill matches so many of our common mayflies of Pennsylvania.

Why does the Light Cahill produce consistently throughout the fishing season? It copies many of the light cahill mayflies found on so many Commonwealth streams. You'll find mayflies copied by the Light Cahill on streams

from late May through early September. Look at Penns Creek, Big Fishing Creek, or the Little Juniata River and you'll see light cahill naturals emerging almost every month of the fishing season.

Quill Gordon

It first happened on Mehoopany Creek in northeastern Pennsylvania one early spring day. That afternoon of fly fishing near Forkston still remains a vivid memory. I saw dozens of quill gordon naturals appear over some fast water and trout went on the first feeding frenzy of the season. I tied on a size 14 Quill Gordon and the action began. It ended two hours later with eight trout caught and released and again that many missed or lost.

But the Quill Gordon works for much of the season. I remember the day I hit a gray drake hatch and spinner fall on Potato Creek near Smethport. The hatch occurred on the stream near the end of May and trout began feeding on the spinners at 7:30 p.m. I rummaged through my fly box and quickly grabbed a size 14 Quill Gordon. A size 12 pattern would more closely have matched the size of this large mayfly spinner. Trout began feeding on the spent spinners in the long riffle in front of me. I cast the Quill Gordon and they readily took the pattern. After an hour of spinner fishing the sky grew dark and the fall ended—but not before the Quill Gordon saved the day for me with the gray drake spinner fall.



So the Quill Gordon works in the spring and midseason, but what about later in the year? Along with the Adams, the Quill Gordon also matches the slate drake that appears in June and again in September. I've used the pattern on Penns Creek when the fall generation of slate drakes appeared and it proved to be the right choice.

Which sizes should you use? I tie the



Quill Gordon in sizes 12 through 20. The smaller patterns copy some of the Baetis and blue quills found on trout streams much of the season. I usually use a size 18 to copy blue quill hatches and a size 20 for some of the little blue-winged olives.

Blue-Winged Olive Dun

From almost the first day of the season until the last, you'll encounter mayflies with olive bodies on some of Pennsylvania's better streams. Fish Big Fishing Creek in early April and you'll see little blue-winged olives appearing. Fish Spruce Creek in mid-May and you'll see little blue wings on the surface. Fish dozens of streams throughout the state like Pine Creek or the Delaware River in late May and you'll encounter a larger hatch, the blue-winged olive, copied by a size 14 pattern. Fish Penns Creek or Spring Creek in mid-September and what hatch will you encounter? Of course, you'll probably witness a little blue-winged olive hatch.

I've met even more notable hatches and fishing with the Blue-Winged Olive throughout the state. I'll never forget that first episode with the blue-winged olive on northeastern Pennsylvania's Bowman Creek. That happened in late May a couple of miles below the specially regulated water. This time a larger blue-winged olive appeared and I matched it with a size 14 pattern.

Even into September the Blue-Winged Olive Dun produces trout. I fished the Labor Day weekend on Big Fishing Creek on a section of the stream two miles above Mill Hall. One morning, shortly after Labor Day, I fished over a hatch of blue-

winged olives and trout took the pattern!

So whether you're fishing to a little blue-winged olive dun in April or October, or a larger-sized version throughout the year, make certain you carry plenty of Blue-Winged Olives. Carry them in sizes 14 through 20 and you'll have yourself covered for most of the hatches found in Pennsylvania.



By now you're probably wondering what happened to some of our other favorite patterns. When no hatch occurs I usually use a Green Weenie, Bead Head Pheasant Nymph or a Patriot dry fly. But when a hatch appears, or I suspect that one has appeared recently, I depend first on dry flies that copy many of our hatches.

Don't you be without the Quill Gordon, Adams, Blue-Winged Olive Dun, and Light Cahill. Remember, with various sizes of all four you can be prepared for many of the hatches you'll encounter in the state throughout the entire season.



Fishing and Canoeing ALONE

by Cliff Jacobson

For weeks you planned the float trip. The bass fishing should be excellent. Then, hours before the event, your friend calls to say, "Sorry, I can't go." It's too late to find another partner—you'll have to choose between staying home or going alone.

You inspect the aging 17-foot Grumman you'd planned to paddle. There's a long, twisting smallmouth stream to navigate, several nice rapids and a 300-yard portage around a low-head dam. What if the wind blows up or you have to make fast turns around rocks? Can you do it alone? You wish for a down-sized solo canoe—but, the Grumman is what you have and what you'll have to paddle. Are you up to the challenge?

Thousands of float-tripping canoeists are faced with a similar dilemma. A brave minority go forth; the timid majority stay home. There's great satisfaction in paddling your own canoe. You alone decide where to run rapids, when to stop for lunch, whether to stay on shore or paddle the rough stream.

Soloing perfects paddle skills and builds self-confidence, and perfecting your skills helps you be a better angler. Let's review the rules for paddling your own canoe.

Modify the boat

How you'll carry your big canoe around the low-head dam comes later. Right now, the concern is getting the craft from the garage to your car. Man or woman handling a 75-pound canoe alone is nearly impossible without the aid of a portage yoke. Every canoe shop has portage yokes, though few are very good. You'll save money and treat your body more kindly if you build your own yoke.

Next, check out possible paddling positions. Canoes are best soloed from the center, or from a point slightly behind center. This rule is written in stone and holds whether you are paddling a solo or

tandem canoe. If there's wind, or you have to turn fast, you'll need the paddle leverage and neutral balance of being situated in the middle of the canoe.

A good procedure is to kneel just behind the center thwart or carrying yoke. If the canoe is too wide here for comfort, scoot sideways and place both knees close together in the bilge (you'll want a foam kneeling cushion). The canoe will heel over smartly and sit firmly on its rounded side. Your center of gravity is very low, so don't worry—you *won't* tip over! This classic "Canadian position," as it's called, provides acrobatic control on quiet water, but it's tough on knees, very tiring and precarious in rapids. And of course, you'll have to do all your paddling on the same side.

When rapids rage

Rapids are prime spots for smallmouths, so learning how to negotiate them is vital. Level trim is the rule for running rapids, which means you must pilot the canoe from its center.

If you have a typical wide-beamed tandem canoe, try this: Remove the center thwart and install a narrow seat or wide kneeling thwart 18 inches behind center and 10 to 12 inches off the floor. You may need long extender bolts to drop

the thwart to the suggested height. The leading edge of the thwart should pitch downward about 30 degrees so it doesn't jab your derriere when you kneel. You'll want to contact cement closed-cell foam kneeling pads to the bottom of the canoe. Build up the pad thickness so that your rear is centered on the seat when you kneel. Your yoke must be removable so it won't interfere with your paddling position.

Try this procedure on reasonably calm water if you don't want to modify your canoe: Turn around on the front seat and paddle the canoe backward. The stern is now your bow. If there's a thwart next to the bow seat, remove it so it won't interfere with your position. Place packs, tackle and loose gear forward of the yoke to trim the canoe dead level. Pour a cup of water into the canoe: It should pool just below the center thwart.

When the weather gets rough, shuffle forward to the center thwart and kneel just behind it. The thwart should barely touch your chest. Move your gear back to re-trim the craft. Your center position allows the weightless ends of the canoe to teeter-totter confidently with the waves.

This is an extremely stable position when the wind blows up. Bad weather or long rapids may keep you on your knees for some time, so be sure you have padding. The strap-on pads that gardeners wear are inexpensive and provide a good grip.

Paddles and such

• Paddles: You're both bow and stern in a solo canoe, so you need equipment that's geared to the challenge. Generally, the beamier (wider) the paddling station, the longer the paddle you need to reach the water. Ditto, as seat heights rise.

Your solo paddle should be two to four inches longer than your favorite tandem paddle to provide the leverage you need to maneuver. You'll burn plenty of calories whipping your canoe about alone,





The magic of purebred solo canoes

If you love fishing alone in a canoe, you'll want to experience the joy of a canoe that's built for the purpose of solo paddling. Solos are light, fast and easy to control, even in high winds. Modern solo cruising canoes average 14 to 15 feet and generally weigh under 40 pounds. Once you learn to paddle them well, you'll have no trouble keeping pace with your friends in their tandem canoes. And you'll have much more fun on any watercourse.

Tough day at the office? An hour's fishing after work on a local pond may provide the rejuvenation you need to "continue on."

Solo canoes are the sports cars of the paddling world: tandem canoes are sluggish 18-wheelers.

But let's not get ahead of ourselves. It begins with going alone in any canoe, for a few minutes or a few days. But the magic is there from the start. The solo angling bug bites deep, and its venom lasts a lifetime.

so avoid paddles that have wide banjo blades. A blade width of seven to eight inches conserves energy and provides enough bite to make snappy turns.

You can really blast across a lake if you use a double-bladed paddle in your canoe. However, the typical kayak paddle is too short. You'll need a length of around nine feet. It's hard to find paddles this long—you may have to make your own. Simply cut off the aluminum shafts on two identical plastic-bladed paddles and install a locking sleeve. Some paddle makers offer break-down double-blades, and they allow you to specify shaft length. A few provide snap-in grips that convert each half of a double-blade to a single blade. What could be more wonderful?

- **Safety lines:** It's not easy towing a swamped canoe ashore alone, without a rope. So tie 10 to 15 feet of brightly colored polypropylene (it floats) rope to each end of your canoe before you launch your craft. Don't wrap lines around thwarts—they should be available when you need them. Most paddlers coil and stuff ropes under a loop of shock cord on deck. Some creative types screw quick-release clips or tiny metal clothespins to the gunwales and run each line to a position where they can grab it easily.

- **Sponge:** Whenever you change paddle sides, water drips into the canoe. In no time you'll have a pond. A big

sponge is standard equipment for solo anglers in canoes.

Paddle strokes

Paddling a beamy (wide) canoe straight without the help of a partner is an energetic pastime, even if you're well-practiced in the solo art. Of course, you can switch your paddle from side to side as needed, but this is ugly and inefficient. Switching sides "Minnesota style" makes sense only if you are paddling a very narrow canoe—or you are located in a narrow portion of a wide canoe. If the width of your paddling station measures more than 30 inches, you're best advised to snug up to a rail and power along with a "C-stroke."

The wonders of wind

Solo angling canoeists, like sailors, are in tune with the wind. The rule for "level trim" prevails unless you are running before or with a very strong wind. These are the rules:

1. Trim the canoe slightly bow down (two inches are enough) when running into the wind. It's better to move tackle and gear forward than the paddler. You'll discover it's easier to balance a canoe for solo angling if you divide your tackle and gear into two packs or bundles.

2. Trim the canoe slightly tail down when running down-wind.

3. Don't "ride with the flow" in a strong tail wind. Keep paddling! If you don't maintain speed, the canoe may broach in the waves and swamp.

4. Paddle on the lee (downwind) side of the canoe.

5. Learn to tack across wind.

Safety concerns

Capsizing on open water is your only real concern. Without a support crew, you have to swim your outfit to shore—reason enough always to wear a life jacket. Be sure your canoe has enough flotation so it won't sink. Flotation foam adds about four pounds to a canoe, so minimal amounts are often used on high-performance boats.

Equip your canoe with lines as suggested, and secure gear to the canoe so it won't drift away if you capsize. Rescuing a swamped canoe alone is hard enough; chasing after packs, tackle and a camera bag is next to impossible. Carry a knife in case you have to cut yourself free of a tangled rope. And always bring a butane lighter (or waterproof matches), whistle and first-aid kit, even if you're out only for a few hours.

Getting water out of a swamped canoe isn't hard. However, climbing back aboard in running waves is. In rough water, you'll probably have to swim, so you'd best be prepared for it.





BOAT CONTROL

is the Ticket to Angling Success

by Darl Black

Jeff Snyder leaned against the bow pole seat of his bass boat as he glanced back and forth between two depthfinder screens. His right hand held a 7-foot medium/light-power casting rod. Over the port side about 50 feet of 8-pound-test monofilament trailed from the rod tip. A 5-inch avocado Kalin Grub on a 1/2-ounce football jighead danced enticingly on the end of the line.

A breeze moved the boat across the Lake Erie surface at a good clip. Every so often Snyder touched the foot button on the trolling motor to move the boat left or right along the drift path. By watching readings from different transducers, one on the bow and one on the stern, Snyder was teetering along an 18-foot breakline. The bow-mounted depthfinder (with transducer on the electric motor) was at his feet; the second unit (with transducer on the transom) was positioned on the boat's console with its screen rotated so he could see it clearly from the bow.

The view from two screens let him balance the craft at the exact depth where smallies were hugging the bottom. Drift too shallow or too deep and the trailing grubs might as well miss the schooled fish by a mile.

I've fished with many anglers, but I had never seen anyone manage to keep a drifting boat positioned so precisely. Under a bluebird sky with smallmouth bass hitting less than enthusiastically, we managed to put together an impressive catch, complete with photo proof.

When you see a photo of an angler landing or holding a nice fish, questions come to mind. What kind of lure or bait did the fish take? What time of day was it caught? How fast and how deep was the lure retrieved? What kind of rod, reel and line were used? And the list of questions goes on and on.

But in the quest for details of the catch, one critical tidbit is usually overlooked. How did the angler control his or her position to make the presentation to the fish? If you are a bank fisherman or wader, position may seem like a simple proposition. Your feet are planted firmly (or nearly so) on the shoreline or on the bottom of a streambed. Direction and speed of movement is controlled by each step.

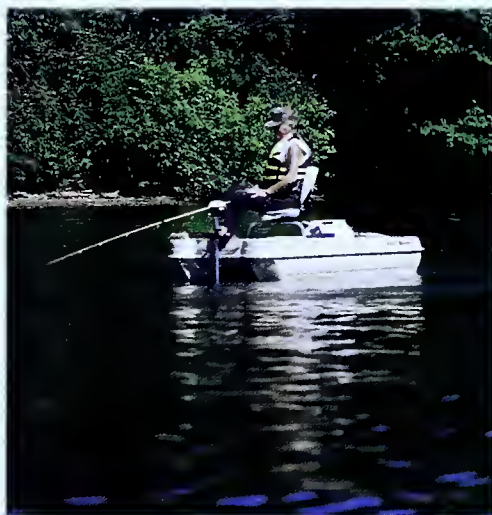
However, when angling from a boat, it's an entirely different story. A boat is a floating platform at the mercy of wind, waves, wakes and current. Unless you

establish control of the craft, the elements take control of your fishing.

The fishing boat

Back when my dad introduced me to fishing in the 1950s, there were few boats on the water. We fished from a 16-foot lapstrake wooden boat powered by a 5 1/2-horsepower Johnson outboard, usually anchoring in lily pads to dabble minnows for crappies or haphazardly drifting the open water with Junebug spinners for walleyes.

Other times dad would go bass fishing with a friend in a smaller johnboat or canoe. Taking turns, one person



would cast lures to visible cover while the second angler rowed or paddled the boat. All this, of course, occurred before the days of electric motors and depthsounders.

How fishing from a boat has changed! Today there are approximately 300,000 boats registered in Pennsylvania. According to a Commission survey a few years back, the most popular fishing craft in the state is a 14- to 16-foot aluminum boat. Compared to the tub I fished from as a boy, modern boats are very maneuverable.

The recent trend is to slightly larger craft, particularly in the walleye and bass boat market where more 18- to 20-footers are sold each year. With today's powerful 24- and 36-volt electric motors, a 20-foot craft is not difficult to maneuver. Just keep in mind that in breezy conditions the high freeboard on aluminum V hulls increases maneuverability problems compared to the low profile of a bass boat. The tradeoff, of course, is that the low-profile boat cannot handle rough water as safely as a high-side fishing boat.

Basic boat control methods include drifting, anchoring, and of course, positioning with the electric motor. Proper positioning of the mobile casting platform is a multifaceted adventure, and not easily mastered without practice.

Tools of control

Depthfinders and boat positioning go hand in hand. Sure, visible cover can be fished without sonar, but move a few feet from the shore and you need the underwater eyes of a depthfinder.

Even though the average angler may want the pretty picture display created by liquid crystal graphs, many seasoned fishermen prefer the old flasher-style depthfinder. Support for flashers remains steadfast because the unit provides instantaneous information. The marks of a flasher show what is under the transducer at that very instant—"real time reading," it's called.

A liquid crystal graph provides a slight delay in the picture, which means what you see on the screen is already behind the boat.

Of course, for a little more money it's possible to purchase LCD depthfinders with 3-D bottom views or side-scanning capabilities. Whatever you choose, it is important to use a depthfinder you can understand. If you're unwilling to learn how to read the lines of a flasher, don't put one on your boat.

The electric trolling motor has revolutionized boat control. The term "trolling motor" perhaps is a misnomer. Although it can be used for trolling, the chief purpose of the electric motor today is to position the boat for the best casting opportunity. Gone are the days of oar or paddle positioning.

Most anglers prefer to use a foot-controlled bow-mounted electric motor. Others remain loyal to a hand-controlled transom mount. Of course, a bow-mounted motor may be of the hand-controlled type, too.

When using a bow-mounted electric, a second depthfinder positioned in the bow with a transducer on the shaft of the electric motor is strongly recommended. The angler must work with both the electric positioning motor and depthfinder to achieve accurate boat positioning on structure. It is possible to follow a shoreline, and sometimes a visible deep weed edge, without a depthfinder, but as soon as fishing shifts

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to deeper water, the sonar plays a critical role.

An angler must learn to glance continually at the depthfinder, make direction adjustments with the electric motor, and cast—all at the same time. The electric motor/depthfinder combination allows the angler to slowly track a breakline or creek channel, circle a submerged hump, or zigzag a tapering point. It is also possible to hover in place over a couple of deep stumps, a pile of rocks, a sunken boat, bridge abutment, or any other isolated cover that may attract fish.

Anchoring is a precise approach to boat control, but not considered a suitable search method to find fish. With the development of stronger and more reliable electric positioning motors, some anglers started leaving the anchor at home. Don't do that! An anchor still is a very important tool and safety item.

There are many types of anchors on the market. The navy-style is probably the most effective all-around anchor. A boat under 15 feet can get away with a 15-pound anchor; a boat 16 to 20 feet should have a 20-pounder. And don't forget to have enough rope to allow the anchor to get a good bite into the bottom.

For anchoring in depths up to 30 feet, the ratio of rope to water depth is a minimum 3:1. This means, depending on wave and wind conditions, it may take a length of rope three times the depth of the water at which you wish to anchor. In deeper water the ratio may be as high as 7:1.

Always keep the bow of an anchored boat into the wind or into the river current. After the first anchor is deployed, a second anchor may then be dropped also from the bow if boat swinging interferes with your casting or bait presentation. Actually, boat swing can be useful in covering additional water when anchored.

Don't drop an anchor, first or second, from the stern in a current. If the bow anchor fails, you're left with a stern anchor. In a current, this arrangement can swamp the boat.

I consider the small buoy markers important tools of boat control. These brightly colored floating markers attached to a cord and weight are used to identify underwater spots for better positioning. It's kind of like putting pins in a map. You

decide how to use them. They may be used to mark single deepwater objects, or string several along a breakline so you can more easily trace it with the electric motor. Markers may also be used to identify the beginning and ending points of a desired drift, or the key area to cast once you drop an anchor.

Although often overlooked in today's high-tech fishing, drifting is a legitimate presentation for open water species. Either the electric motor or gas outboard can be used to help control the direction



and speed of a drift. However, an equally important tool for drifting is the drift sock. The parachute-shaped nylon sock billows out in the water, thereby increasing resistance to a boat pushed along by surface breezes. On a day too rough for effective trolling motor use, a drift sock slows the boat to a satisfactory fishing speed.

Putting it all together

Choice of boat control methods depends on the species sought, location of fish and the lake/weather conditions. Occasionally it may be possible to stick with a single approach all day long, but more likely it will be necessary to switch control methods as the fishing situation changes. An angler capable of using all aspects of boat control will be among the most successful.

Unlike many tournament bass anglers

who depend solely on the electric positioning motor to hold at key spots, Snyder is not ashamed to use other boat control methods.

"You can't fish isolated spots for Lake Erie smallmouths like inland anglers do for crappies or largemouths," said Snyder. "On big waters, smallies are likely located at a particular depth on any given day. Smallmouth schools stage on structure along that depth. Setting up a controlled drift across a long structure makes a lot more sense than trying to hold at one particular section of the breakline or flat."

To achieve a sideways boat position that lets several anglers trail lines without tangling, Snyder shuts down the outboard motor and turns the prop into the wind. This keel angle puts the boat broadside to the breeze. He then uses the bow electric motor to slide left or right as needed to track the depth.

"If a strong breeze is pushing the boat too fast, I tie a drift sock to a front cleat to slow the boat's drift," Snyder says. "If the lake is dead flat or the breeze too light to move the boat fast enough, I use the electric to troll grubs."

The same drifting tactics Snyder uses on Erie can easily be applied to inland waters, not only for smallmouths but for other species like walleyes and crappies. Instead of dragging curl-tail grubs, walleye anglers would do better with spinner-and-worm rigs. On non-weedy lakes in the summer, drifting small tubes or minnows over flats or along

the river channel is a surefire technique for crappies.

Not wanting to be pegged to one spot, Snyder rarely drops an anchor for Lake Erie smallmouths. Years of experience have demonstrated that smallmouths are usually spread over an "area" rather than at a single "spot." However, in other circumstances, anchoring is both practical and effective.

Anchoring is most effective when fish are holding tight to a deepwater structure, or when a school is moving into a defined area for a feeding spree. Of course, to anchor in the right spot requires knowledge of the species movements coupled with past fishing experiences on a particular water. Random anchoring, simply because you do not know what else to do, produces only a random fish or two.



photo-Dart Black

Remembering

by Joel M. Vance



A. Jacobs

*Once we sat in his
boat at sunset when
the west caught on
fire and flamed
with incredible
brilliance.*

*“Soak that up,
son,” he told me.
“It won’t ever be
just that way
again.”*

The church was hot. July heat. It was a palpable presence that made a sad occasion also uncomfortable. If you have to send off your oldest fishing buddy, at least it should be on a day when the air snaps and sparkles and the trout leave the somber dark holes in Thirty-Three Creek to chase mayflies in the shallows.

A bank of thunderheads promised a hard, cooling rain before long. There would be a quick runoff through the deep, fern-softened woods, pumping both oxygen and food into the creeks. The water would come up and trout would feed.

Uncle Al would have been watching those rainclouds. Sucking on a pipe and picking out which stream he was going to fish.

But Uncle Al was finally in the place held studiously avoided for so many years, the Methodist Church. Seventy-five years old and stout as an oak billet. Full of beer and cantankerous opinion

and woods lore. His death had been typical of him—a headlong plunge into a new adventure.

He drowned in Birch Lake because he never learned to swim. When they found him he had a couple of loops of 25-pound-test braided casting line around his arm and on the other end of the line was a 42-pound musky, the largest fish seen in the four-county lake area in at least 20 years. They found a broken rod in the boat. Apparently he’d been playing the big fish, the rod broke, he tried to save the catch and somehow fell out of the boat. That was Uncle Al—save the fish and forget to save yourself. First things first.

I felt my throat lump, tried to fight down the tears. “We all knew Al,” the minister said, searching for encomiums which were hard to come by because we all did know Al.

“He was...” The minister paused and I was tempted to smile, for the minister

was restrained from scratching his head in frustration only by his training. "He was a man of good intentions and a friend to everyone."

That much certainly was true. I'd been Uncle Al's fishing buddy and he taught me what wasn't in the books, taught me how the lakes breathed and the woods sang and the fields whispered and he did it without a lot of hokey enthusiasm. Once we sat in his boat at sunset when the west caught on fire and flamed with incredible brilliance. "Soak that up, son," he told me. "It won't ever be just that way again."

Another time on a trip out of state he dragged me out of bed, none too gently, to see the northern lights. I stood shivering in the cold night air as the sky pulsed and flared. "Next time you get to thinkin' you own the world," he said, "you try to make this happen."

I'd been back to Birch Lake only a couple of times since college. A demanding job, a couple of kids, a thumping mortgage, paperwork at night, Saturdays at the country club. It left little time for fishing. The business of life is business. Who said that? Herbert Hoover? No, he was a fisherman.

Maybe no one said it. Maybe I said it... I jerked my mind back. The minister was finishing the mercifully short ceremony. We should have had it down at the Bluegill Bar, on Uncle Al's home turf. We should have set up a few rounds for the lumberjacks and potato farmers who were Uncle Al's cronies, and then we should have taken him out to some little trout stream, laid him on the cool moss amid the sun-dappled wildflowers and then gone away and left him. That's what we should have done.

The cemetery rites were even more perfunctory than those in the church. Sweat trickled down my back and the thunder rumbled even louder. I walked away from the raw earth, feeling the first drops of the summer storm patter down. By the time we got back to the old home place, rain was washing down in wind-thrown torrents, and the branches of the gnarled apple tree genuflected. Then the storm was gone and weak sunshine flirted coyly with the last surly storm shadows. Finally the storm grumbled off to the east like a growly old dog.

I didn't want to start the 500 miles home this late in the day, but I couldn't face the smarmy pulse of neighbors stopping by to pay their respects, bringing

Remembering

yet another cake or pie, so I put on an old pair of jeans and a T-shirt and climbed into my big car—big, luxurious, a quietly-humming status symbol. Soft and overblown. Like me.

The car was as out of place in the rutted driveway of the old shingle-sided house as Uncle Al would have been bellied up to the bar at the country club. He'd have grumbled, "Hey, these guys don't know dogfish from doughnuts. All they want to talk about is investments."

I'd drifted a long way from the jugged kid I once was, who hung around with the knotty, gnarled little pine-knot uncle with no teeth and bleared eyes that missed nothing.

Uncle Al taught me to fish for brook trout. He stuck a pop bottle filled with little minnows in the hip pocket of his overalls. His limpy jogtrot would keep the water aerated and he'd hike far back on Thirty Three or Sucker or Weirgor Creek and drift minnows under the root wads and into the eddy pools. The brook trout hit hard, fought right up to the instant he cracked them over the head with the heavy handle of his old pocketknife. The fish were rich, pink-meated, and often we'd build a little fire on the creek bank, spit them on a switch and roast them, like marshmallows. Uncle Al always carried a little salt shaker for the fish and he invariably stashed four cans of beer in an icy spring hole. Three were for him, one was for me.



The car air conditioner whispered and the tires slurped and smacked over the heat-softened roadbed. Without realizing it, I'd driven to the Thirty Three Creek crossing. There were no cars at the well-worn pulloff, and on impulse, I parked and got out. The air was heavy. Tar stuck to my shoes as I walked across the highway and slid down the embankment to the fisherman's path that led into the shadowy woods.

"Don't even *think* about fishin' till you get to where there ain't no gum wrappers," Uncle Al used to growl, pushing through the alders with me tagging along behind. "When you get to where you can't see no path, that means there ain't been a lot of other dudes in there. That's where you start fishin'." And he'd stash his (our) four beers in the creek, unlimber an old fly rod with a set in it like the trajectory of a low-velocity cannonball, and fumble in his bait can for a night-crawler, or his Coke bottle for a minnow.

I took my time on the path, which was slippery from the rain, feeling the wet from the grass soak through my pants. I recognized a few landmarks, including a deep hole where I'd slipped one cold day and dunked clear to my ears. Uncle Al cussed me at first for being clumsy, because it meant the end of the fishing trip before it even began. But when I started crying because I'd spoiled his fun, Uncle Al growled, "Aw, heck, I fell in there, too. Hush up or I'll swat your ears off." And I knew he didn't mean it and was sorry he'd been upset with me.

The path became less distinct. I cut across a bend and carelessly dragged my arm over a stinging nettle. The fiery itch drove me back to the tumbling stream where I plunged the offended skin into the cold water and sighed with the relief it gave.

That's when I saw the boy, just upstream from what Uncle Al and I had called The Big Hole 20 years before. He had his back to me, a blond kid maybe 12 years old. He was carefully drifting bait through the swirling, dark water, his fly rod bent by age and poor workmanship. The ratty reel was held on with what we used to call bicycle tape.

Even as I watched, the line checked, then twitched against the current. Instantly, the youngster set the hook and carefully played a nice brook trout for a few moments. Then he deftly flipped the squirming fish onto the grassy bank.

He neatly killed it with the handle of his old pocketknife and stuck the fish



*"Don't ever grow up, kid," I said.
"It's not all it's cracked up to be."
I flipped a pebble into the water.*

in a wet cloth flour sack. I hadn't seen a cloth sack like that for years.

The boy turned toward me and I said, "Having any luck? I mean, I guess you are. You just caught that one..." I paused, realizing I was babbling. "You caught me by surprise," I said. I'm running off at the mouth. I walked over to him, on the springy, soggy moss-covered streambank.

"I used to come here when I was about your age," I said. "A long time ago." The boy said nothing. "What are you using for bait?" I asked.

He dragged a Coke bottle out of his hip pocket. There were several minnows swimming around in it. I noticed it was one of the old-style bottles, the kind I hadn't seen in years.

"That's a neat trick," I said. "I used to do that, too."

"You fish much, Mister?" he asked.

I thought on it. "No, not now," I said. "A long time ago I did. That hole always had a lot of trout. I guess it still does." And then I thought of something. "That's funny—I called it a hole. That's what we called them when I was a kid, but I got to hanging around with guys who told me I was supposed to call it a run. We wouldn't have been very popular using worms and minnows and talking about fishing in a hole."

I sat down on a rounded boulder and rubbed my face. It felt stiff with the long trip, the strain and grief of the funeral.

I took a deep breath, blew it out explosively. "Don't ever grow up, kid," I said. "It's not all it's cracked up to be." I flipped a pebble into the water.

"You want to try to catch a fish, Mister?" The boy asked. I looked at him and he held the rod toward me. I realized that I very much did want to try. I pulled out my license and pinned it on my shirt. He handed me the Coke bottle and I sloshed a minnow loose, capturing it gently between my thumb and forefinger. I hooked it under the dorsal fin, swung it out over the pool, let it drop and sink. A tiny splitshot carried it deep into the dark water.

I forgot about the youngster. My attention was focused on the line. I felt the soft pressure of the water on the line with my left hand, the time-rubbed softness of the cork grip with my right hand. I studied the pulsing meanders of the pool's currents, guided the minnow so it would be carried under the overhanging bank where the brookies would be sitting out the hot day. I felt the twitch of a taking fish, and set the hook. It was an old ritual, not played for many years, and it felt good.

The fish throbbed against the rod, a

good fish. I played him carefully, letting him rip line off the old fly reel, quickly taking up the slack when he darted toward me.

The line cut through the water with a tiny hiss, the only sound. Scouts of foam swirled slowly, but even the water tumbling into the pool was almost soundless. The fish was almost played out. It was a big brookie, perhaps the biggest I'd ever caught. It looked to be perhaps 15 inches long, its brilliant spotting clear and sharp. It rolled on its side, done in.

I knelt, wet my hand, held the fish gently while I worked the tiny hook loose. I supported it as it slowly regained strength, righted itself, finning weakly, gills working. The fish eased forward out of my cupped palm, paused just an instant, and then with a strong flip of its tail, was gone back into the tea-colored depths of the pool.

Even as I knelt in the silence, a red-bird called, from far away, as if it were the first bird of the day, in the hushed silence of dawn's beginning. Then it called again, more clearly, finally resolved itself as a bird calling from right over my head. I shook myself, trying to clear the cobwebs, wiped my hands on my pants, rose and said, "That was some fish..." But the boy was gone.

I looked quickly around the clearing. He wasn't there. I laid the old rod down, trotted a few steps to the sharp bend at the head of the pool and peered upstream into the lowering sun. For just an instant, his form hazed by the sharp sunlight, I saw the boy... and beside him, a shambling old man.

They were indistinct, but as the old man hobbled away, I knew him. Then they were gone, melted into the shadows.


"Hey!" I shouted. "Hey, wait up." A kid's expression I hadn't used for years.

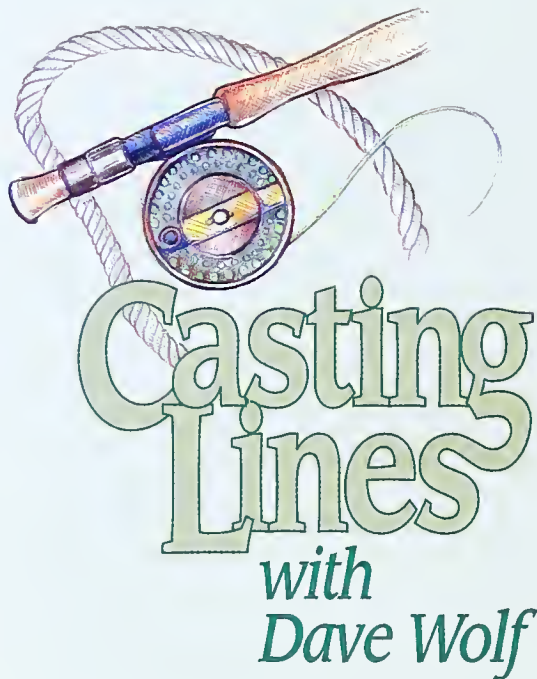
There was no reply. Perhaps if I hurried, I could catch up with them, give the boy back his rod. And see who the old man was. I trotted back to where I'd laid the rod down. It wasn't there.

Oh, sure, I looked halfheartedly for it. But I knew I wouldn't find it. Maybe there are no endings, only continuations.

I looked around the clearing, watched the ceaseless, timeless pulse of the creek. I studied the scene, the trees, the ferns, the trout lilies, the moss, the rippling dark water.

"Thanks again, Uncle Al," I whispered.

And then I started back up the trail, on the long road to tomorrow. 



Casting Lines

with
Dave Wolf

Keeping It Fun

It is just me and a boil, along the far bank. My tippet is fine, my fly tied with precision and the best materials. Despite the back eddy of flowing, circular waters, I have, over the years, learned to cast and mend line well enough to present the fly properly. I feel my shoulders tighten as the fish boils and sends rings that eventually dissipate half way across the pool. "Good fish," I say aloud. "Darn good fish." My heart quickens and my hands perspire. My vision is locked. Nothing and no one in the world but a trout and me, with business to take care of.

How I arrived at this place in time may or may not be important. But the ride was not overnight. It has taken years on end to reach this destination. First, there was a grandmother who loved to fish, and was capable of taking her fare share on a regular basis—a woman who was always smiling, kind and fun-loving. It was this woman who had led me to the gentle flow of Penns Creek, where with her instruction I cast my first glob of nightcrawler with the help of a bamboo pole. A forked stick is where I placed the rod and then I sat and waited. Patience was perhaps the first thing that I was to be taught.

After an eternity, the rod bounced three times, and on the third bounce I set the hook with a mighty upswing of the rod. My grandmother laughed until the tears dropped from her eyes and ran down her cheeks. Fishing, I realized, was fun, and the laughter was much more frequent in life back then, than now.

Life rushed by like a flooding river, and fishing became an integral part of it: My business, my working hours and my

times of pleasure. If I had a close friend, you can be certain he or she fished and took the sport seriously.

Vacations always involved water and a place to cast. It mattered little whether it was a still-water pond, a Class A trout stream or breaking surf. There was one requirement only—there had to be fish, or at least a good possibility of fish. My collection of fly fishing gear grew and grew as did fly tying materials. Of course, as with most things, the more I practiced, the better I became. But love and passion may grow to obsession, and when and if it reaches that point, then perhaps you, like me, are in danger of keeping it fun.

I have fished with those cat-like creatures, bouncing across the water or up and down the stream. Matter of fact, I still turn into one on occasion. Fishing washes me into a sea of tension; of seriousness best reserved for the problems of life, not the pleasures. Headaches and tight, sore muscles should not be, in my opinion, the result of a day of fishing. I have complained loudly and explicitly when I have missed a good fish, or when at the boat, the hook pulled free. I have left the waters angry when my day went bad. "Bad" meaning I took no fish, or fewer than I thought I should have.

I have indeed acted childish when a steelhead went cascading over the boulders and my leader parted. Strange, for I no longer keep fish.

I, too, know of a friend who decided to give tournament fishing a try. It was a small event, but he soon found that the participants were downright serious fishermen. After hours of fishing my friend found mother nature calling and asked his fishing partner to drop him off at a facility along the shoreline. His partner became irate to the point at which he would not talk to my friend throughout the remainder of the event. My friend almost quit tournament fishing, but decided on another partner instead.

When recalling the event, he told me, "it just wasn't fun." But to his credit he took control of the situation and made it fun. As I believe, he believes that there are far too many concerns of life greater than catching a fish, and that fishing is a pleasurable escape, or at least it should be.

This is not to mean that you cannot carry fishing to the fanatical stage if you are having fun. It is enjoyable to be a fanatic, but it is simply hard to keep from falling over the line into obsession.

The boil appears again and I begin timing the rises. I want to cast when his head



photo: Dave Wolf

is down, right after he takes a natural. The time comes and the cast unrolls. The current grasps my fly line, threatening to drag my fly to the fish. I flip the rod to mend line and the fly bobs naturally with the current. The fly waffles and wavers into his feeding zone, and as the fish snout appears a mink scrambles along the bank. There had been a time that it would not have been a distraction. Tunnel vision between that fish and me. But I watch the mink for a split second, and in that instant the heavy brown rises and takes my fly.

I lift the rod to set the hook and only "jag" the fish. I smile as the waters quiet. He is too wise to rise again, and I salute him, as I do all those that get away—well almost, for I regress from time to time as well. If my friends would have been there they would have laughed and teased me about my reaction time slowing with age, and I would have laughed as well.

It matters little to what degree of expertise one has risen, or how many endless hours one has spent on the water. What really counts is that you are having fun. An ingredient stolen from so many aspects of life that are out of our control. Not in fishing. In fishing the measure of success is your own—the many methods allowed to achieve your goal. Daily angler or weekend explorer, the day may best be measured by the smile on your face and the calm that has crept deep within you.



PLAY



Pennsylvania • League • of • Angling • Youth

WINTER 1997

COLD WATER SURVIVAL

Winter is an exciting time to be outside!

There are many winter sports to enjoy like ice skating, sledding, ice fishing, snowmobiling and skiing. Being warm and safe should be number one on your list of things to do this winter.

If your winter activities take you near water, be very careful. Cold water can steal your body heat more quickly than cold air. That's why you should dress in layers, starting with long underwear. Clothing made with wool is best for keeping you warm, even when it's wet. Top it all off with a knit hat, scarf and gloves.



**HEAT
ESCAPE
LESSENING
POSTURE**

Last of all, wear a life jacket. It not only makes you float if you fall into the water, but it also helps to trap your body heat.

What if you fall into the water and can't get out? If you can't get out of the water and the shore is too far, get into the Heat Escape Lessening Posture, known as **HELP**. Cross your arms across your chest. Cross your legs at your ankles and pull them up to your chest, as if you were doing a "cannonball" jump off of a diving board. By keeping your body in a ball, you help trap air

in your layers to help you float, and you hold in body heat, too.

Find the 16 words and phrases hidden in the word search below that relate to cold water activities and safety.

L	A	F	J	S	L	H	A	T	M	R	H
I	C	Z	I	L	Q	L	R	D	M	F	O
F	R	O	X	E	U	Y	G	P	R	I	H
E	B	I	L	D	H	O	B	E	A	S	D
J	T	Q	E	D	F	J	E	S	W	H	W
A	A	F	O	I	L	Z	B	O	O	I	S
C	E	H	E	N	E	Y	D	U	A	N	K
K	H	E	S	G	L	O	V	E	S	G	A
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L	O	O	W	R	A	Q	J	K	B	V	N
T	B	S	K	X	Z	S	C	A	R	F	G



Pennsylvania Fish & Boat Commission

Answers on
next page.

KIDS!

CAST and CAUGHT



Misty Jumper
Shermans Dale, PA



Michael Jumper
Shermans Dale, PA



Corey Lear, Berwick, PA



Richard K. Appert, Bath, PA



William Matthew Shields
Phila, PA

CAST
CAUGHT and
EATEN!

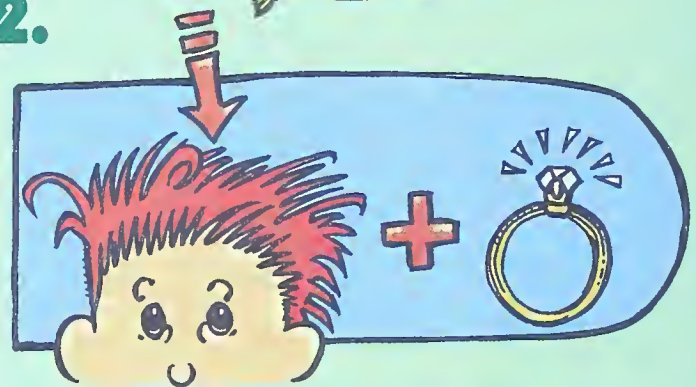
Picture QUIZ

Guess the name of
each fish according to
each picture's description.

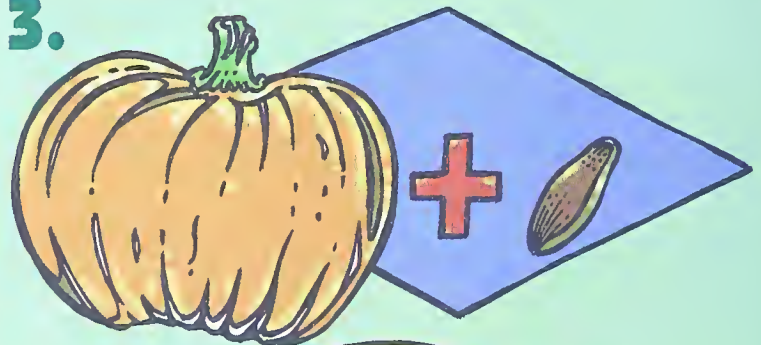
1.



2.



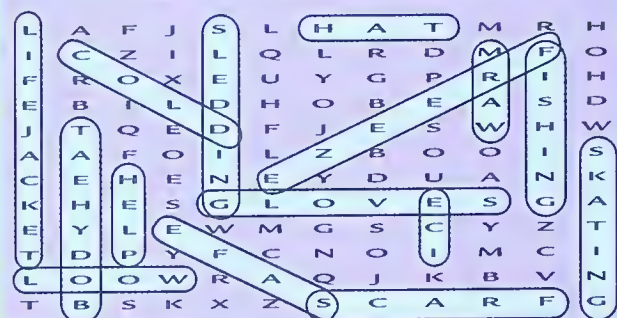
3.



4.



Answers to Cold Water Survival Maze



The **EFFECTS** of **FLOOD AND MUD** on **FISH**

Wow, Pennsylvania had a lot of floods this past summer! And with the floods came muddy water. Muddy water can cause many problems for fish. Mud that you see in water is called silt. Silt is very small particles of loose soil that get washed off the land by heavy rains. When the water in a creek or river slows, the silt starts to settle. The silt that lands on the creek bottom and on the shores is called sediment. You can also find sediment on roads and in basements that have been flooded.

Silt is usually carried by a creek or river all the time. Sometimes there is a lot of silt and you see muddy water. Sometimes there is only a little silt carried by a river and you can't even see it. When there is a lot of silt in the water it damages fish's gills and makes it hard for them to breathe. Silt also carries bacteria. This bacteria can cause infections in fish's gills.

Silt can cause more problems for fish. When the silt settles out as sediment, it covers the bottom of a river. Fish find much of their food on the bottom of the river. If the sediment is covering their food, the fish can't get to it. The sediment can also suffocate the insects on the

bottom that fish use as food. Sediment can smother fish eggs, too.

Well, what can we do about silt and sediment? We can try to keep silt out of the water. We can keep grass, trees and other plants growing in our yards. The roots of these plants help hold the soil in place when the hard rains come. Bare soil is washed away easier than covered soil. Trees and plants are also very important on the banks of streams and rivers.

A wetland can hold a lot of water and keep areas around it from flooding. When water gets held up in a wetland, it slows down. Sediment settles out of the water in the wetland instead of ending up in the stream.

Another thing we can do is to be on the watch for stream disturbances. A stream disturbance is something that changes a stream. These are things like farm animals walking on the shore and in a stream, bulldozers digging near a stream, and dirt bike trails going through a stream. All of these things loosen the soil. When the hard rains come, this soil is very easily washed into the stream.

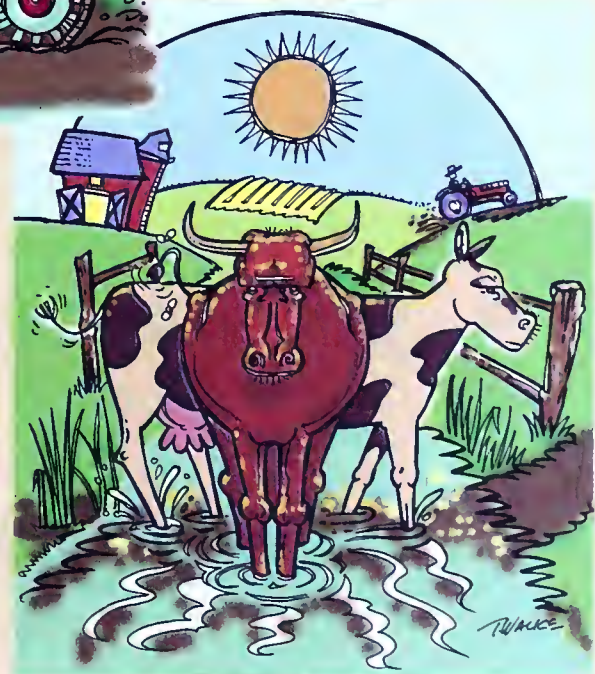
SILTSTARTERS



As described above, stream disturbances can loosen the soil. It washes into streams, causing sediment and silt.



Shown here are four different kinds of "siltstarters." Describe what's happening in each scene and what could be done to avoid being a "siltstarter."



HIGHLIGHTS on Hybrid Fishes

A **hybrid** is a cross between two closely related animals or plants. In this case, we're talking about fish hybrids. In a hatchery, the two fish are combined in a way to get the good features of two fish in one fish, known as the "hybrid."

Hybrid fish also occur in nature. In a hatchery, a hybrid can be developed to grow faster, get bigger and fight more than either of the parents. Some examples of hybrids in Pennsylvania are the golden rainbow trout, tiger muskellunge, striped bass hybrid and saugeye.

Hybrids can be developed for many different reasons. There may be other hybrids around you that you don't even realize. A mule is a hybrid. It is a cross between a donkey and a horse. Another hybrid is a tangelo. It's a cross between a tangerine and an orange. You may see signs for corn hybrids along the roadside. "Bread and butter" or "salt and pepper" is the common name for a corn hybrid that you may find in a grocery store. Can you think of any other hybrids? Check an encyclopedia to see if you're right.

"Wipers"

A striped bass hybrid, nicknamed "wiper" or "sunshine bass," is a cross between a male white bass and a female striped bass. It combines features of both types of bass into one fish. Pennsylvania usually gets

its striped bass hybrids from Georgia. The striped bass hybrid grows faster and gets larger than the white bass, but not quite as big as a striped bass. It is also easier to keep alive in different water conditions.

Striped bass hybrids are stocked as 1- or 2-inch fingerlings from May to July. In one year, a striped bass hybrid can grow to be 6 to 9 inches. In only three years, a hybrid can grow to legal length (20 inches)!

Last year, the Fish and Boat Commission stocked almost 100,000 striped bass hybrids in large lakes and rivers across Pennsylvania.

The easiest way to identify a striped bass hybrid is by the lateral bars just above the lateral line. If the lateral bars are broken into dashes and are not solid lines, the fish is probably a striped bass hybrid. If the lateral bars are solid and run from head to tail, the fish is probably a striped bass or white bass.

See if you can figure out the missing fish names in the hybrid combinations below.

1. Striped bass +  = striped bass hybrid

2. Rainbow trout + West Virginia golden trout = 

3.  + northern pike = tiger muskellunge

4. Sauger +  = saugeye

Where in Pennsylvania is Carmen Fishiego?

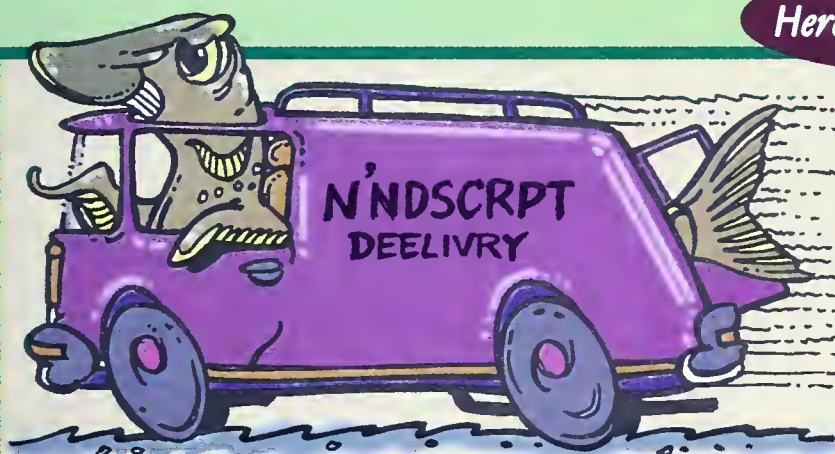
Nescopeck is No More!!

Not long after noon, we received notification that Nescopeck State Park was no longer on the map. This park in Luzerne County wasn't even fully developed yet—it didn't even have a park office—and now it's gone.

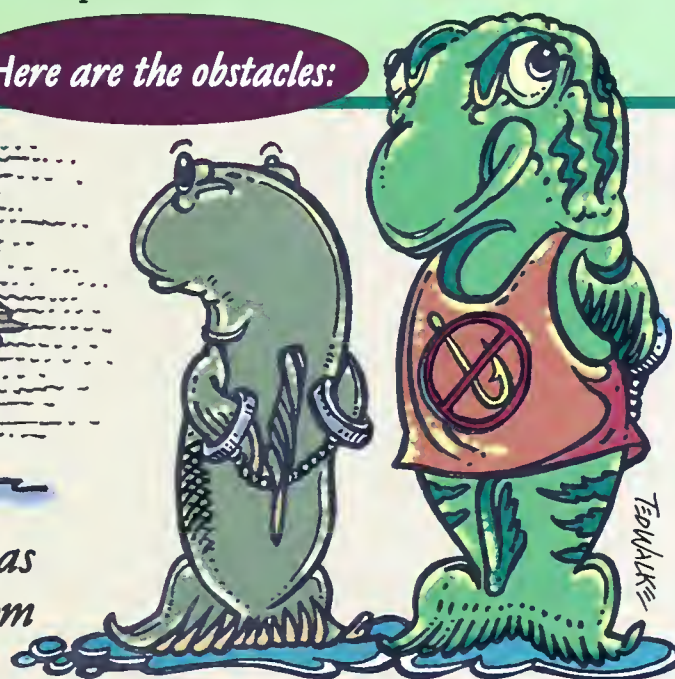
The suspect has never been so obvious. Maybe that scenic stretch of Nescopeck Creek was irresistible, maybe it was the trout that

were too tempting, or maybe it was just her cronies who coerced her. Nonetheless, Carmen Fishiego has never done a deed so dastardly as this. Nescopeck needs your help. To which waterway has Carmen taken the stash? The Bureau of State Parks called Headquarters with these details.

Here are the obstacles:



A northern pike in a nondescript van was seen driving east on Interstate 80 not far from our Northeast Regional office.



Chuckie Chub and Bernie Bass were apprehended in the Three Rivers City and taken in for questioning. When asked if they were associated with the crime, they responded, "Not necessarily."

This gnarled number was found drawn in the dirt where the park used to be: 28S, 837S.



Our radios picked up this coded message. What could it mean? "We're bringing LochNES to the MONster."

Who has been nominated to head up the case? None other than you, Gumshoes. Now get to work and let's nail that no-good northern!

Pennsylvania's Freshwater Filters



photo: Rob Criswell

Freshwater mussels are relatives of oysters and clams. They have very simple bodies. Inside their two hard shells is a soft body, a pair of gills and a strong foot. Mussels eat algae. They are filter-feeders. This means that they suck in water, filter out small particles (very small pieces of things), then push out the water.

They have two siphons (si' phens), or tubes, that they use to filter feed. They are very close to each other. One siphon is used to suck in the water. The mussel filters out particles while the water is inside it. The gills also get what they need from the water-oxygen!

When the mussel is done with the water, it shoots the water out through the second siphon. Mussels use their strong, muscular foot to burrow into the bottom of a river or lake. They also use it as an anchor.

Mussels act a lot like swimming pool or aquarium filters. As water moves through a filter, particles get stuck inside and cleaner water comes out. In an aquarium the filter is used to get rid of old fish food and algae. In a swimming pool the filter takes out bugs, dirt, leaves, algae and pieces of grass. In our streams, mussels filter out algae and other things.

Filters help keep the water clean. That's what mussels do, too. Pennsylvania has 42 species of freshwater mussels that are native to the state.

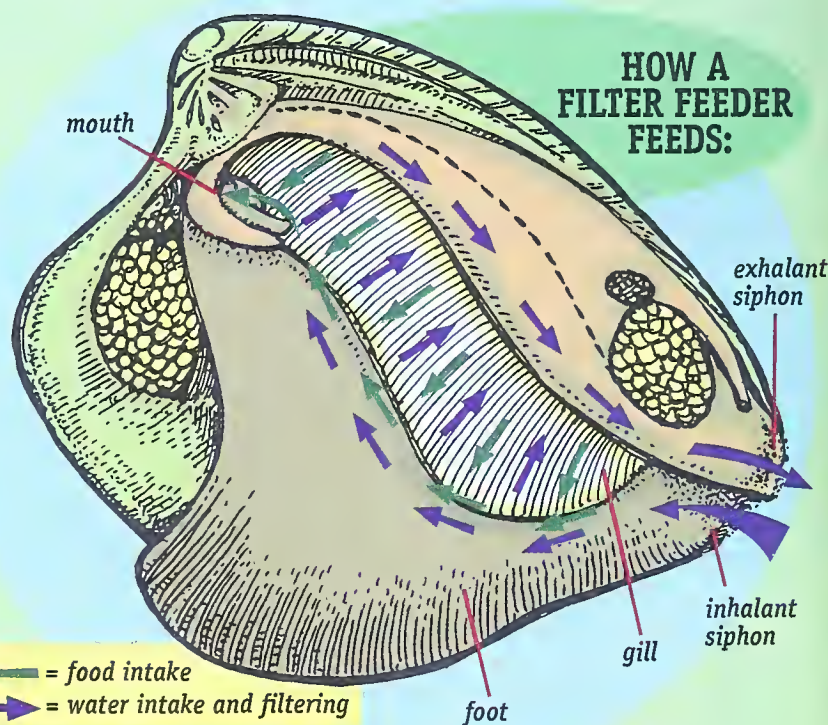
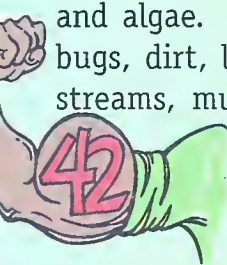
In Pennsylvania and other states, mussels are declining. Mussels are disappearing because of many things. Soil washes into rivers from yards and fields. When this soil settles to the bottom of the river, it smothers the mussels. Dams slow moving water. Some mussels can live only in fast-moving water. Too many chemicals in the water also kill mussels.

Another thing that kills mussels is the zebra mussel. Zebra mussels were accidentally brought into Pennsylvania. Zebra mussels use thread-like tentacles to attach to freshwater mussels. Zebra mussels can completely cover freshwater mussels and keep them from opening their shells. Freshwater mussels that can't open their shells will die. Zebra mussels also

filter water just like the native mussels. They cleaned up Lake Erie very quickly. But zebra mussels can filter water too well. They filter out all the particles and don't leave any for other mussels and fish.

Many biologists are studying mussels because they want to know more about them. There are many things that we don't know about mussels. Biologists want to know more about what mussels do and how they do it. They also want to know how many mussels are in Pennsylvania. If you see any mussels on your travels in Pennsylvania, write a letter to the PLAY Tackle Box and let us know.

Freshwater mussels live on or in the bottom of a lake or river. They spend their entire lifetime in a very small area, unless they get carried downstream by a flood. The baby mussels develop inside the female's shell. At a certain time, she releases them through her siphon and into the current. The baby mussels are very tiny. They attach to the gills of certain fish. They travel on the fish's gills until they find a good place to let go. They burrow into the bottom of the river or lake and grow to be adults. Mussels can live to be 15 to 100 years old!

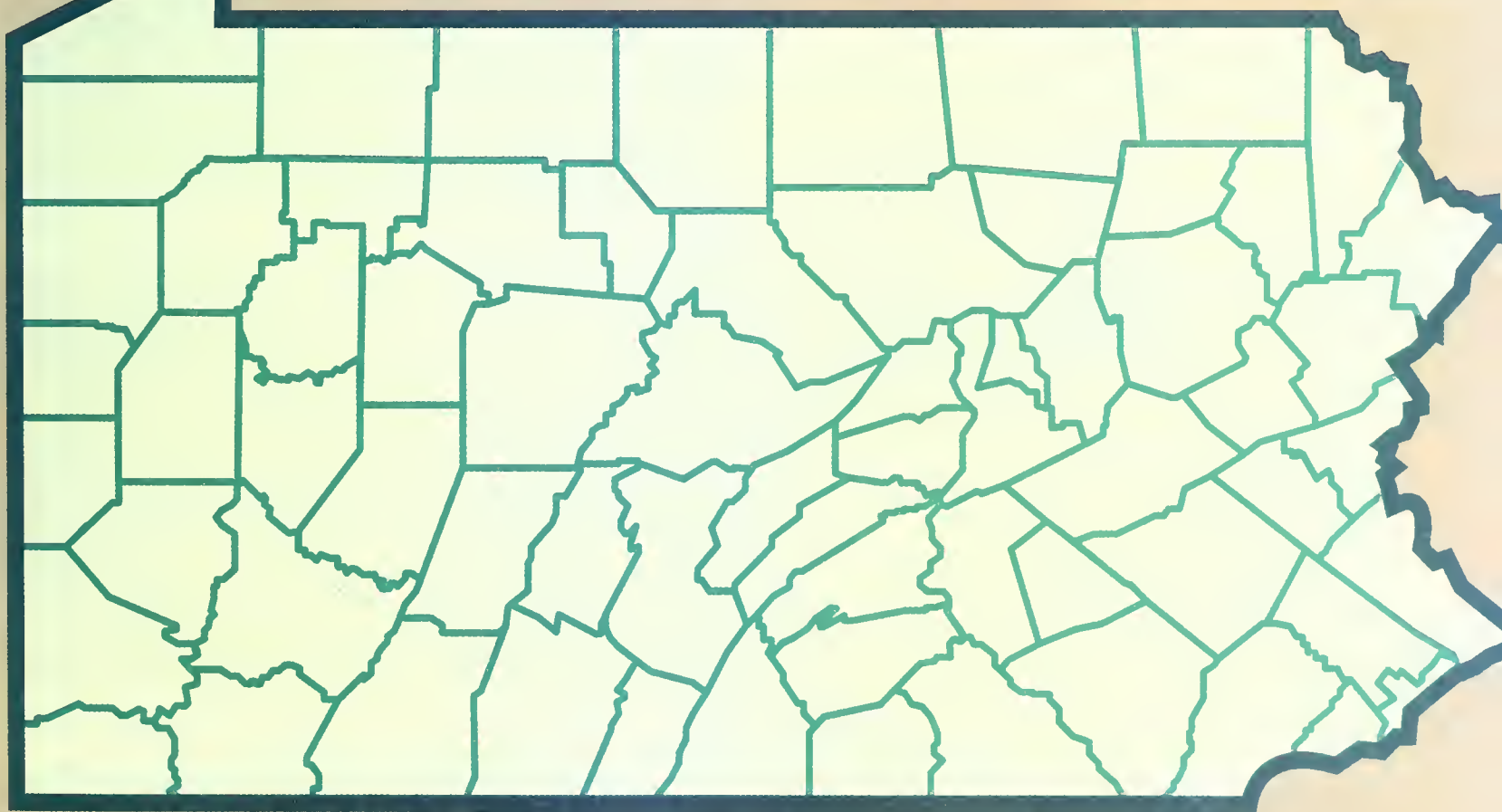


The County QUIZ

Hey kids, how much do you know about the counties in Pennsylvania? Try to answer these questions. Then fill in the names of the 67 counties on the map. You may use the list for help.

1. Name three of the four counties with animal names.
2. Which of these three counties does not border New York state: Bradford, Susquehanna, Wyoming?
3. Name three of the four counties named after presidents.
4. Which are the four corner counties?
5. Which county houses the state capital?
6. In which county can you find the highest point in Pennsylvania?
7. In which county was oil first drilled in Pennsylvania?
8. Name the two counties that border the state of Delaware.
9. In which county can you find the Northeast Regional Office of the Fish & Boat Commission?

Adams	Dauphin	Monroe
Allegheny	Delaware	Montgomery
Armstrong	Elk	Montour
Beaver	Erie	Northampton
Bedford	Fayette	Northumberland
Berks	Forest	Perry
Blair	Franklin	Philadelphia
Bradford	Fulton	Pike
Bucks	Greene	Potter
Butler	Huntingdon	Schuylkill
Cambria	Indiana	Snyder
Cameron	Jefferson	Somerset
Carbon	Juniata	Sullivan
Centre	Lackawanna	Susquehanna
Chester	Lancaster	Tioga
Clarion	Lawrence	Union
Clearfield	Lebanon	Venango
Clinton	Lehigh	Warren
Columbia	Luzerne	Washington
Crawford	Lycoming	Wayne
Cumberland	McKean	Westmoreland
	Mercer	Wyoming
	Mifflin	York





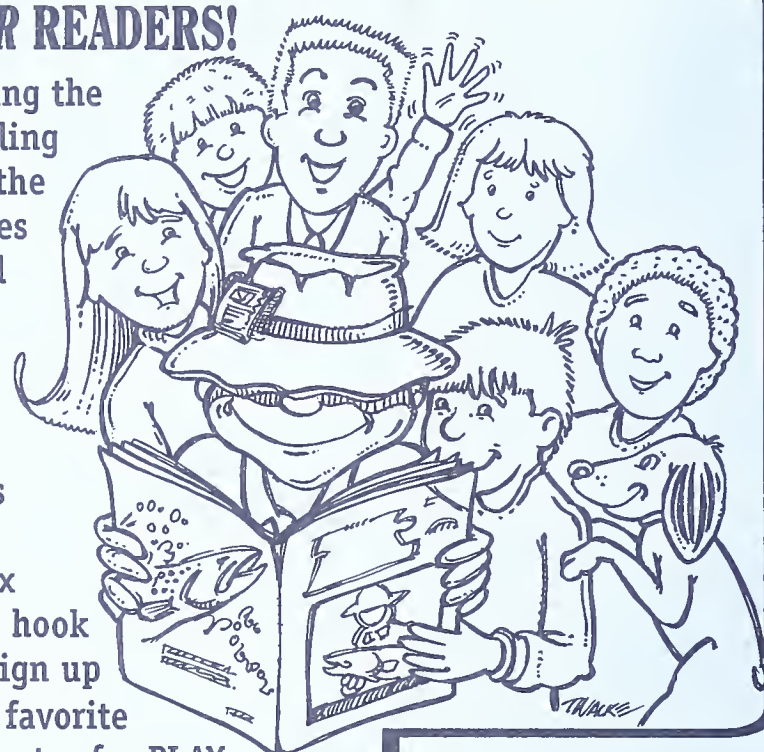
Pennsylvania League of Angling Youth
 Pennsylvania Fish & Boat Commission
 P.O. Box 67000
 Harrisburg, PA 17106-7000



LIFE JACKETS
They Float
YOU DON'T!

HEY, ANGLER & BOATER READERS!

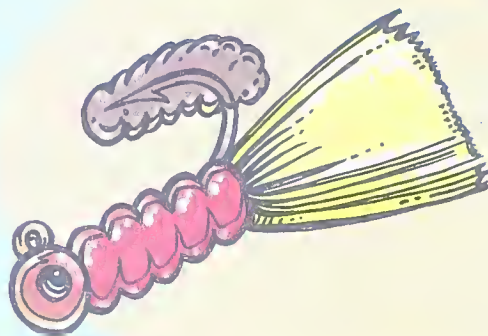
You can look forward to seeing the Pennsylvania League of Angling Youth (PLAY) newsletter in the *PA Angler & Boater* four times each year. But to get the full benefits of membership in PLAY, you need to complete the coupon below. Full membership in PLAY is only \$3.00 per year and members receive the PLAY Newsletter, a collectable patch, tacklebox stickers, a good luck fishing hook and several activity pages. Sign up



your favorite youngster for PLAY or be prepared to share your copy of *PA Angler & Boater*!

FISHING TIPS

Be sure to wear a warm hat and a turtleneck or scarf when you're outside on those cold, wintry days. Almost half of your body heat is lost through your head and neck in cold weather.



Jack Frost may be nipping at your nose, but the bluegills are still biting! Try using small jigs and flies in fluorescent orange and red. Add a real grub to the jig to make a bluegill's favorite winter treat.

SUBSCRIBE TO

PLAY

Pennsylvania • League • of • Angling • Youth

The Pennsylvania League of Angling Youth is an educational program designed to reach youngsters. Members receive a colorful sew-on patch, quarterly newsletter, publications, access to the PLAY Correspondence Center and more.

It's a bargain at only \$3.00 a year. Sign up today!

Name _____ Age _____

Address _____

City _____ State _____ Zip _____

Make checks payable to: Pennsylvania Fish & Boat Commission, Mail to: Pennsylvania Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.

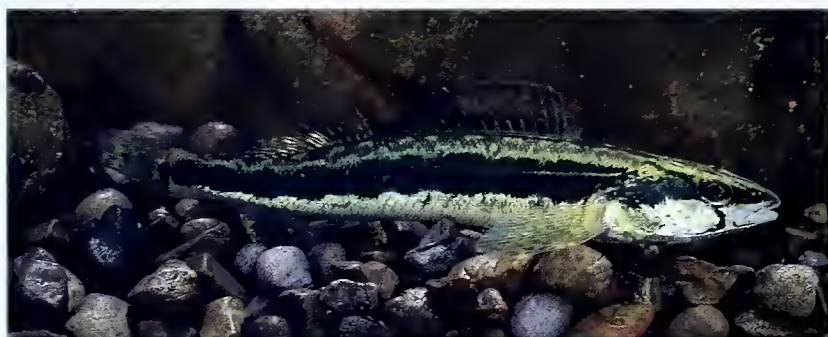
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Pennsylvania's Dynamic Darters

by
Andrew L. Shiels



Rainbow darter



Longhead darter



Banded darter

Darters are among the most vividly colored, behaviorally complex, ecologically important and abundant fishes found in Pennsylvania. Yet, how many visitors to the Commonwealth's waterways have ever seen a darter in the wild or even realize that such creatures exist? As the smallest members of the perch family, they rarely exceed four inches in length. For this reason, no one looks at them as table fare, as we see the yellow perch and walleye. Although they are sometimes used as bait by anglers, they are not as popular as blacknose dace, shiners or stonecats. Still, darters are arguably the most attractive of all Pennsylvania fishes in terms of physical appearance. This is especially true of the males during the breeding season.

Darters are also an important biological component of the waterways they inhabit. Each species has evolved to occupy a specific niche, which allows partitioning of available habitat and food resources among other fishes. Darters prey on insects and crustaceans, and in turn are preyed on by species such as smallmouth bass and walleyes. Thus, darters are one link in the larger chain of their aquatic environment. The presence of darters in a waterway reflects good water quality and diversity of appropriate habitat.

Attractive or not, we are learning more about the various darter species and their interactions in Pennsylvania's waterways. The roles that darters play and the functions they perform continue to emphasize their importance.

Description

The taxonomic classification of darters is a continuing process. New species and/or subspecies continue to be described by ichthyologists using advanced techniques to discern differences and similarities among isolated or nearby populations. Darters are perch-like fishes grouped into the Percidae family and are restricted in distribution to North America. Three genera of darters comprise over 150 North American species. They represent greater than 20 percent of the 750 species of freshwater fish found in the United States and Canada. Currently, two genera of darters are recognized as occurring in Pennsylvania. Twenty-one darter species are split between the genus *Etheostoma* (13 species) and the genus *Percina* (8 species). Until recently, the genus *Ammocrypta* was represented in Pennsylvania by a single species, the state endangered Eastern Sand Darter. However, this species, formerly known as *Ammocrypta pellucida*, was recently renamed by taxonomists and is now named

Etheostoma pellucida—that is, at least until another researcher can make a more compelling case for it to return to the genus *Ammocrypta*.

Why they're "darters"

A darter's ability to maneuver in, around and under rocks and substrate gives it an advantage as a bottom forager. Riffles and swift currents provide protection for darters because few predators can live there. Many darters such as the johnny darter do not possess a swim bladder. This lack of buoyancy allows them to stay near the bottom and facilitates their rapid darting movements. In addition, bottom-dwelling darters possess flattened, downward-sloping heads. This feature lets them take advantage of water flowing to help plane or push down on the fish's head, thereby helping the fish to remain near the bottom. Conversely, mid-water darter species such as the blackside darter do possess a swim bladder to help them remain suspended in the water column.

Overall, darters are small. However, there is considerable variation in maximum length among the species found in Pennsylvania. The Eastern sand darter (2.0 inches) and the Tippecanoe darter (1.8 inches) are the smallest Pennsylvania darters. The logperch and greenside darter can each reach lengths of 6.5 inches and are the largest darters in the Commonwealth.

In nature, it is usually true that "form follows function." So it is not surprising that the Eastern sand darter has a different body shape than its stream-dwelling cousins. This species lives primarily in lakes or slow-moving waters and burrows into the sand for protection. The sand darter is proportionally much longer and thinner than its flowing water relatives. This lets it quickly wriggle into the sand, leaving only its eyes exposed. This tactic provides the sand darter with protective cover in areas where rock or gravel substrate does not exist.

Feeding

Darters are mid-depth and bottom-dwelling fishes. Their location and movements depend on substrate type as well as the velocity, chemical and thermal composition of their liquid environment. They seek their prey among the rocks, gravel or sand along the stream or lake bottom. Prey items typically range in size up to approximately 3/16-inch.

Prey selection varies with the life stage

of the fish. Juvenile darters consume small crustaceans such as cladocerans, copepods and ostracods. Adults prefer chironomids (midge larvae), simuliids (blackfly larvae), ephemeropterans (mayflies) and trichopterans (caddisflies). Large darter species such as the longhead darter may also eat amphipods (freshwater shrimp), isopods (sowbugs) and crayfish.

Darters rarely compete with most minnow species because the minnows often occupy the upper levels of the water column. Food availability and water velocity help to determine the activity levels of darters' foraging. For example, in pools or areas of slower current, darters range farther to procure food. Similarly, when flow rates are high, travel is reduced. Feeding is primarily by sight, so darters are daytime feeders. Still, peaks in feeding activity typically occur early and late in the day.

Reproduction

Reproduction in darters generally takes place during the spring and summer. Day length, or photoperiod, is important in initiating reproductive activity among darters. Water temperature plays a larger role in termination of spawning activity. For many darter species spawning has been reported to occur over extended periods of several months. Also, there is evidence that females of some species may spawn several times during the reproductive season. Sexual maturity for many species can occur at age one. However, egg production increases with age. Mature female darters can produce between 230 and 1,000 or more eggs, depending on the species.

Spawning by darters is accomplished in one of three ways, depending on the species. All members of the genus *Percina* and some *Etheostoma* bury their eggs in the substrate. The eggs are abandoned and there is no parental care.

Using a different approach, some *Etheostoma* species, such as the greenside darter, attach their eggs to submerged vegetation or rocks and then abandon them. In this case the female releases one to three eggs at a time and attaches them to a rock, stick or plant.

The most complex and energetically demanding strategy is used by species such as the johnny darter and fantail darter. These darters engage in nest building and cluster spawning. The male digs out a nest underneath a flat rock in preparation of mating with one or several females. After mating, the female attaches the adhesive eggs to the underside of the rock. The male then provides care and protection for the eggs until they hatch.

Generally, in darters and many other fishes, the colorful appearance and perhaps courtship dance of the male is sufficient to attract a female for breeding. However, the male fantail darter attempts to improve his chances by displaying an additional feature that is especially attractive to females. Female fantail darters prefer to mate with males that already have eggs. To the female this is probably a signal that the prospective male is a good "risk." That is, he has already demonstrated that he has the physical fitness to protect a clutch of eggs to their maturity. But what if the male has not previously mated with another female or has been unable to commandeer a clutch of eggs from another male? Theoretically, he would not be selected by the female for breeding.

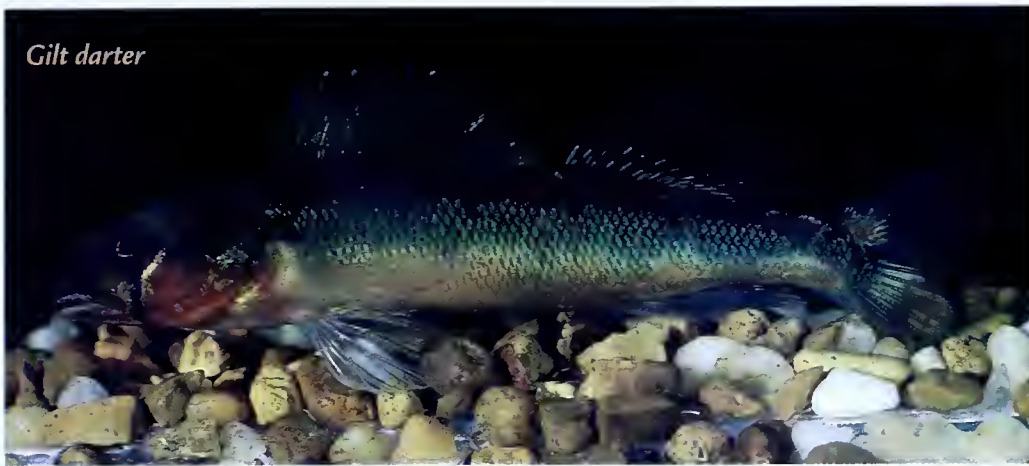
In response, male fantail darters develop fleshy knobs consisting of modified epidermal cells at the tips of the spines on their first dorsal fin. These knobs, also known as egg mimics, resemble the shape and color of actual darter eggs. Researchers have shown that female fantail darters prefer to breed with males that display egg mimics. Even though these fleshy knobs may also be useful as tools in housekeeping of the



Eastern sand darter

photo: Robert W. Criswell

Gilt darter



nest, their primary function is as a female attractant.

Distribution

Darter species are neither randomly nor evenly distributed throughout the Commonwealth's waterways. Before man-induced changes on the North American landscape, fishes were distributed by natural forces. Glacial advances and retreats, emergence of mountain ranges and erosion of watershed-separating barriers all contributed to present-day fish distributions.

Today, the greatest concentration of darter species occurs in northern Alabama and eastern Tennessee. The number of darter species declines in North America as the geographic distance from that region increases. Tributaries of the Mississippi River were the main routes of darter dispersal throughout the eastern United States. However, the Appalachian Mountains apparently served as enough of a physical barrier to reduce the dispersal of species eastward. As a result, Pennsylvania waters in the Ohio River Basin contain a greater diversity of darters than the Susquehanna River Basin and Delaware River Basin, respectively.

In many cases the headwater areas of Pennsylvania streams in the Ohio River Basin represent the northern or eastern limits of the range for a particular species in North America. Some of these darters are listed as state endangered, threatened or candidate species because of their rarity within the borders of Pennsylvania. As such they are protected by special regulations. In addition, projects involving activities that may adversely affect these species are reviewed by Commission staff in an effort to conserve the remaining populations.

Often species are present in a watershed because of human activities. At least one species, the banded darter, appears to have been introduced to a watershed

where it is non-native by way of unintentional stocking or a bait bucket introduction. Historic fisheries surveys in the Susquehanna River watershed did not reveal the presence of this species. However, in the 1960s it was discovered in an upper Susquehanna River watershed tributary.

This species is currently well-established particularly in the main stem of the Susquehanna River. Since this species occupies a niche similar to darters native to the Susquehanna River Basin, adverse interspecific competition may result. This situation is currently being studied.

Ecological interactions

Besides the role that darters play as both predator and prey, there are undoubtedly other interactions that remain to be discovered. An important relationship still under investigation involves darters and freshwater mussels. Some fish species, including darters, are integral to the reproductive cycle of native Pennsylvania mussels. After a female freshwater mussel has mated and developed larvae, they must be dispersed into the aquatic environment where they eventually settle to the bottom to mature into adults. These microscopic larvae, which are also known as glochidia, are released into the water column and attach to the gills of certain fish species.

Typically, only one or a few fish species are suitable for attachment by the glochidia of a given mussel. Mussels cannot swim, so the fish provides a means of transport for distribution of the larvae into other areas of the stream. Some Pennsylvania streams that contain endangered, threatened or candidate darters also contain endangered mussels. Therefore, the continued existence of the mussels is directly linked to the survival of the host fish. It is probable that specific darter/mussel relationships will become apparent as the research continues.

Regulations

Anyone wishing to capture or study darters in the Commonwealth's waters should consult the *Summary of Fishing Regulations and Laws* or contact the nearest Fish and Boat Commission Regional Law Enforcement Office. Species that are not listed as endangered, threatened or candidate can be captured with the same gear that is legal for gathering baitfish. However, it is unlawful to catch, take, kill or possess protected species. Because identification of darters can be difficult, especially for the amateur, study these fishes in their own environment without removing them.

Provided that state or local regulations allow it and adequate safety measures are taken, snorkeling is a great way to observe and gain an appreciation for these beautiful fish. Their colors and interesting behaviors can rival that of fishes in more exotic locations, such as the Caribbean. Various field guides are now available to aid in species identification, and many university libraries contain more advanced texts on darter ecology.

Protection and conservation

Darters thrive in clean, unpolluted water. Threats to their survival include habitat alteration or loss, point and nonpoint source pollution, and competition in the form of exotic species introductions. Acid mine drainage, particularly in streams of the Ohio River Basin, has degraded or eliminated many miles of darter habitat.

Sedimentation is especially harmful to darters. Excessive sediment and silt can smother eggs or reduce populations of forage items. For example, mayfly nymphs are a staple in their diet. However, many species of mayflies are susceptible to the harmful effects of sedimentation. Thus, if the forage declines, the darters must select another forage or begin to suffer. As diversity of prey declines, so does the diversity of predators until eventually the chain begins to break down.

Water quality protection strategies that effectively address habitat loss, alteration and pollution must keep pace as increased demands are continually placed on Pennsylvania's aquatic resources. Darters will remain a dynamic part of Pennsylvania's aquatic heritage as long as the quality of their habitat is sufficient to support them. Appreciation of darters and their habitat will increase as more Pennsylvanians discover these seldom seen but very important fishes. □



French Creek, Where Darters Go with the Flow

Although darters occur throughout Pennsylvania, one waterway contains an exceptional diversity of darters and other aquatic species. Beginning in southwestern New York, French Creek flows 117 miles to its confluence with the Allegheny River in Franklin, Pennsylvania. Almost 1,270 square miles of land in Chataqua County, New York in addition to Erie, Crawford, Mercer and Venango counties in Pennsylvania are drained by French Creek.

Stream flow reversals resulting from glacial activity changed the prehistoric course of French Creek to its present-day southerly flow in the Ohio River basin. Previously, French Creek flowed north into the Atlantic Ocean via the St. Lawrence River system. Glacial activity caused aquatic species present in the St. Lawrence River system to be "captured" and added to those species present in the Ohio River system.

When stream flows changed direction, the darters and other species had no choice but to "go with the flow." Consequently, French Creek exhibits an unusually high number of fish and invertebrate species. With 70 species of fish and 26 freshwater mussel species, French Creek is the single most diverse waterway in Pennsylvania. Thirteen (61 percent) of the 21 darter species found in Pennsylvania are known to occur in French Creek. Biologically speaking, French Creek may be the most important stream in the state.

Variegate darter

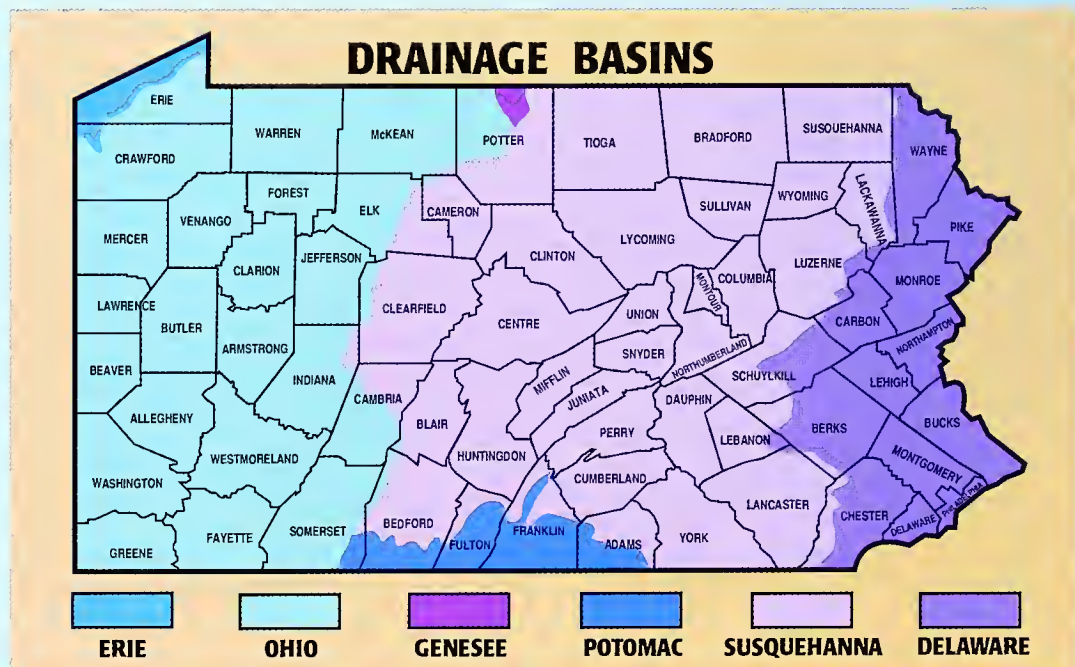


PENNSYLVANIA DARTERS

Common Name	Scientific Name	Drainage Basin Occurrence	Species Status*
Greenside darter	<i>Etheostoma blennioides</i>	E, O, S, P, G	Common
Rainbow darter	<i>Etheostoma caeruleum</i>	E, O	Common
Bluebreast darter	<i>Etheostoma camurum</i>	O	Threatened
Iowa darter	<i>Etheostoma exile</i>	E, O	Candidate
Fantail darter	<i>Etheostoma flabellare</i>	E, O, S, P, G	Common
Swamp darter	<i>Etheostoma fusiforme</i>	D	Extirpated
Spotted darter	<i>Etheostoma maculatum</i>	O	Endangered
Johnny darter	<i>Etheostoma nigrum</i>	E, O, G	Common
Tessellated darter	<i>Etheostoma olmstedii</i>	S, D, P	Common
Eastern sand darter	<i>Etheostoma pellucida</i>	E, O	Endangered
Tippecanoe darter	<i>Etheostoma tippecanoe</i>	O	Endangered
Variegate darter	<i>Etheostoma variatum</i>	O	Common
Banded darter	<i>Etheostoma zonale</i>	O, S	Common
Logperch	<i>Percina caprodes</i>	E, O, S	Common
Channel darter	<i>Percina copelandi</i>	E, O	Threatened
Gilt darter	<i>Percina evides</i>	O	Threatened
Longhead darter	<i>Percina macrocephala</i>	O	Endangered
Blackside darter	<i>Percina maculata</i>	E, O	Common
Sharpnose darter	<i>Percina oxyrhynchus</i>	O	Extirpated
Shield darter	<i>Percina peltata</i>	S, D	Common
River darter	<i>Percina shumadri</i>	O	Common

E = Lake Erie, O = Ohio River, G = Genesee River, P = Potomac River, S = Susquehanna River, D = Delaware River

* Species Status: Protected status as of January 1, 1997.



THE COLDWATER HERITAGE PARTNERSHIP PROGRAM

BY
ROBERT L. PETRI



Imagine a stream improvement project that succeeds in reducing erosion and sedimentation in one section of a waterway, but does not address an almost identical problem at a point farther upstream. That is how waterway and habitat improvement too often has been undertaken: One section of stream or problem at a time, often without adequate regard for problems upstream that may undermine the effectiveness of the effort. The Coldwater Heritage Partnership Project proposes a dramatic new way of protecting and enhancing the finest of our wild trout streams. Instead of the more traditional section-by-section approach, the Partnership aims to look at watersheds in their entirety, and tailor stream improvement efforts accordingly. The results are bound to mean a brighter tomorrow for many of our best waters.

The Coldwater Heritage Partnership is a cooperative effort of the Pennsylvania Fish & Boat Commission, the Pennsylvania Department of Conservation and Natural Resources and Pennsylvania Trout Unlimited, the 54-chapter state council of Trout Unlimited.

Funding for the effort has been assembled from a variety of sources. The Pennsylvania Fish & Boat Commission has committed \$20,000 to the project. The state and national levels of Trout Unlimited are pitching \$3,000 into the program coffers. However, the largest source of financial fuel by far comes from the Pennsylvania Department of Conservation and Natural Resources. With funds made available by the "Key 93" Initiative approved by Commonwealth voters in 1993, DCNR will make \$50,000



Looking at watersheds in their entirety means a brighter future for stream improvement in Pennsylvania.

per year available for program use over the next three years.

John Arway, Chief of Environmental Services for the Fish & Boat Commission, represents the Commission in this effort and is enthusiastic about the possibilities of the program. He points out that even though there are numerous projects underway to address problems in specific sections of numerous Pennsylvania streams, the Coldwater Heritage program is far more ambitious. First, the focus of this effort is to improve the streams that are already known to be high-quality trout water, and to work toward making them even better. Water quality and the ability of a stream to support wild trout will be first priority in selecting candidate waters for the Coldwater Heritage Partnership.

The second difference Arway notes is

the program approach. It is a new way of going about the business of protecting and improving our trout waters. Stream improvement efforts on waterways across the nation have traditionally focused on one stream or stream section and one problem that affects that particular portion of the waterway. Even though there is a long string of success stories associated with many of these projects, such efforts are often at the mercy of factors and situations out of the project participant's control.

The Coldwater Heritage Partnership Program is designed to go beyond this historic notion of limited, problem-oriented focus to address entire watersheds. This emphasis on a more holistic approach to water quality and stream enhancement makes full use of the idea that a watershed or aquatic ecosystem is a

THE COLDWATER HERITAGE PARTNERSHIP PROGRAM

living thing with many component parts, and that the best way to ensure project success is to look at the watershed in its entirety and to make restoration and enhancement plans accordingly.

Rick Carlson, Director of Policy for the Pennsylvania Department of Conservation & Natural Resources, represents DCNR on the program management committee, and like John Arway, he is enthusiastic about the possibilities of the Coldwater Heritage Partnership.

Carlson explains that the program had its beginnings in 1994 when he and others in the old DER Office of Policy reviewed the Pennsylvania Fish & Boat Commission's fisheries management plan with Commission staff. Out of this review came an agreement that there was a need, in Carlson's words, to "get out in front of things" when dealing with protecting the best of our wild trout streams. This meant meshing the expertise and experience within both agencies to look at the larger picture. Carlson notes that while the Commission is responsible for fisheries management and improvement, and the old DER was responsible for overall water quality in Commonwealth streams, there was no one entity with oversight responsibility for both. By creation of this joint task force dedicated to the protection and preservation of our better wild trout waters, a major step is being taken in closing this gap.

In his discussion of the nature of the Coldwater Heritage Partnership, Rick Carlson emphasizes many of the same criteria noted by John Arway. According to Carlson, the Partnership is aimed at watersheds that either currently sustain or have the potential to sustain "highly productive and natural reproducing wild trout populations." This does not exclude the possible inclusion in the program of waters that are currently considered marginal for wild trout. However, such waters must have the potential to produce wild trout once their problems are addressed and corrected. So that maximum benefit to the angling public can be realized from Partnership



efforts, streams chosen for program attention must be open to public use.

Carlson calls the Coldwater Heritage Partnership effort a "blueprint for investment" of the financial and manpower resources available for stream restoration work. And indeed, it is just that. Candidate waters approved for action under the program can be eligible for one of two different types of grants. Preliminary Assessment Grants of up to \$2,000 are available for initially determining the current condition of a candidate watershed, and for building consensus within the affected area. These assessments can lead to an application for a Coldwater Heritage Partnership Grant, which will provide up to 50 percent of the cost of development of a full watershed conservation plan to preserve and protect coldwater ecosystems. The grant recipient must provide the other 50 percent of project costs either through in-kind services or other funding sources. Once proposed efforts under the Partnership have been developed, participants will be directed to a host of funding opportunities and sources provided by regulatory agencies and various conservation groups both at the state and national levels.

Among some of the programs that could be tapped are the Fish and Boat Commission's "Adopt-a-Stream" program or the highly successful "Embrace-A-Stream" program administered by the National Office of Trout Unlimited. Other sources of funding could include Keystone Recreation Grants, Pasture Streambank Fencing Grants, Community Forestry Grants, Nonpoint Source Grants, and Rivers Conservation Grants.

Dr. Edward Bellis, past chairman of the Pennsylvania Trout Unlimited En-

vironmental Committee, rounds out the project management committee as the representative of Trout Unlimited's 54 Pennsylvania Chapters and their parent organization, Pennsylvania Trout, Inc.

Input is currently sought from Trout Unlimited chapters across the state in helping to identify and target watersheds for study and consideration under the program, as well as potential sources of local funding to further increase the effectiveness of project efforts.

Bellis explains that Pennsylvania currently has nearly 1,000 miles of high-quality trout water capable of sustaining healthy wild trout populations. Many of these waters are already producing some of the best trout fishing our state has to offer. Others are producing reasonably well, but need additional help in reaching their full potential. Trout Unlimited's priority is the long-term management of these special waters in a way that best preserves them and their unique fisheries for the enjoyment of generations to come.

Where in Pennsylvania might the funding power and citizen commitment necessary to make a Coldwater Heritage Partnership project a success be found? Two active and dedicated Trout Unlimited chapters in the eastern portion of the state have already climbed aboard and made inquiries about Partnership grants to further their already exceptional work on two of our finest wild trout streams. Both are "comeback" stories of the first magnitude among Pennsylvania trout waters.

The Lackawanna County-based Tri-County Streams Chapter of Trout Unlimited hopes to tap the resources of the Coldwater Heritage Partnership program to further the improvement and protection of the Lackawanna River in the Scranton/Wilkes-Barre area. After decades of severe degradation from the effects of acid mine drainage, over the past decade the Lackawanna has emerged as one of the premier wild brown trout fisheries in the East. However, as Tri-County Streams TU President Joe Cavagnaro explains, problems remain.

Cavagnaro and his fellow chapter members are particularly concerned with the possible effect of the new Cross Valley Highway on the quality of the Lackawanna fishery. They fear that the development and intensive industrialization that often follows such major road construction may adversely affect the continuing recovery of the

Lackawanna. In addition to these concerns, the massive destruction that accompanied the severe floods of January 1996 did not leave the Lackawanna unscathed. Cavagnaro explains that during the height of the flooding, small tributaries of the river overflowed their banks and carried large amounts of coal dust into the river. It was the effects of coal that depressed the Lackawanna for so many years before its recent recovery, and the members of Tri-County Streams are hoping to initiate efforts under the Coldwater Heritage Partnership to take a watershed approach to solving the remaining problems that keep the Lackawanna and its fine wild brown trout fishery from reaching full potential.

In York County, the determined volunteers of the Codorus Creek chapter of TU are hard at work planning the improvement of their namesake stream in the cool waters provided by the outflow of Lake Marburg. They, like Tri-County Streams TU, are looking to the Coldwater Heritage Partnership program to help them accomplish multiple goals in the Codorus watershed, and to aid in the protection and enhancement of the fine wild brown trout fishery that has developed there.

The Codorus, like the Lackawanna River, is another Pennsylvania waterway that has come a long way in the past few years. When the chapter originally began working with the stream in conjunction with Fish & Boat Commission personnel almost a decade ago, the management objective was maintenance of a high-density stocked trout population through the establishment of a Delayed-Harvest area in the slow, meandering reaches of the Codorus downstream from the lake. Stream improvement work was undertaken, and new understandings with streamside landowners were reached.

Then something very unexpected and wonderful happened, here in the shadow of the southeastern Pennsylvania megapolopolis. Good numbers of streambred browns began appearing in the Codorus. Both the chapter and their Fish & Boat Commission allies stood back and took another look. Sufficient numbers of wild trout were found in the Codorus to qualify it for Class A wild trout management. The old Delayed-Harvest area and its stocked trout-oriented management objectives were scrapped in favor of re-designation under the new Selective Harvest Program, which is geared toward protection of wild



trout populations. The focus of the chapter efforts shifted toward habitat improvement to help keep the miracle of the Codorus moving forward.

According to Codorus Creek TU President Tom Feninez, one of the remaining obstacles to a fully healthy and vibrant Codorus Creek lies in a pasture just upstream from the new Selective-Harvest project. Here, a meadow that cradles approximately one-quarter mile of the stream is heavily used by livestock. There is much bank erosion in this stream section caused by the cattle and their wanderings, and as a result, a significant amount of silt and sediment enters the Codorus, making life less pleasant for the wild trout population below. Sedimentation is a problem the chapter has been trying to address on a watershed-wide basis since they became involved with the stream. Indeed, much of the improvement in the condition of trout habitat in the stream thus far has been a result of previous projects aimed at reducing the Codorus sediment load.

Feninez and his chapter have the agreement of the pasture landowner to initiate a program of streambank fencing to reduce the effect of the livestock on the creek. Their goal is to improve conditions here to the point where the strong downstream wild trout population may extend into the newly fenced meadow.

Feninez sees this effort as a "very

ambitious project." However, he also sees it as one of the last pieces of the puzzle in bringing the Codorus up to its full potential as a wild trout fishery. With its emphasis on the overall health of the watershed, the effort is a natural for the Coldwater Heritage Partnership, and Tom Feninez and crew are hoping to make use of the program to make a difference on the Codorus.

Even though the examples of candidate situations we have noted both involve Trout Unlimited chapters, it is important to note that the Coldwater Heritage Partnership program is by no means reserved for the use of these groups alone. Rick Carlson of DCNR notes that any organization can participate as grant applicant on behalf of local government officials. This includes sportsmen's groups of all stripes, development interests, and local conservation groups and watershed associations. Municipalities can participate directly.

In fact, Ed Bellis of Trout Unlimited expresses hope that many of the efforts that will be fueled by the Partnership will be undertaken by a coalition of the types of organizations above. The broader the scope of local involvement, the greater the sense of local pride and project "ownership." And the stronger the sense of local pride, the better the likely results.

The Coldwater Heritage Partnership program is yet another example of what we can do for the aquatic resources of our beautiful state when we connect the expertise of fisheries and environmental professionals with the ardor and commitment of the folks at the grassroots level, and then provide sufficient funds to get the job done. One by one, we can continue to retake and restore the best of our free-flowing trout waters. It is a program that not only addresses the problems that beset our streams today. It is an effort with an eye toward providing quality wild trout fishing for tomorrow.

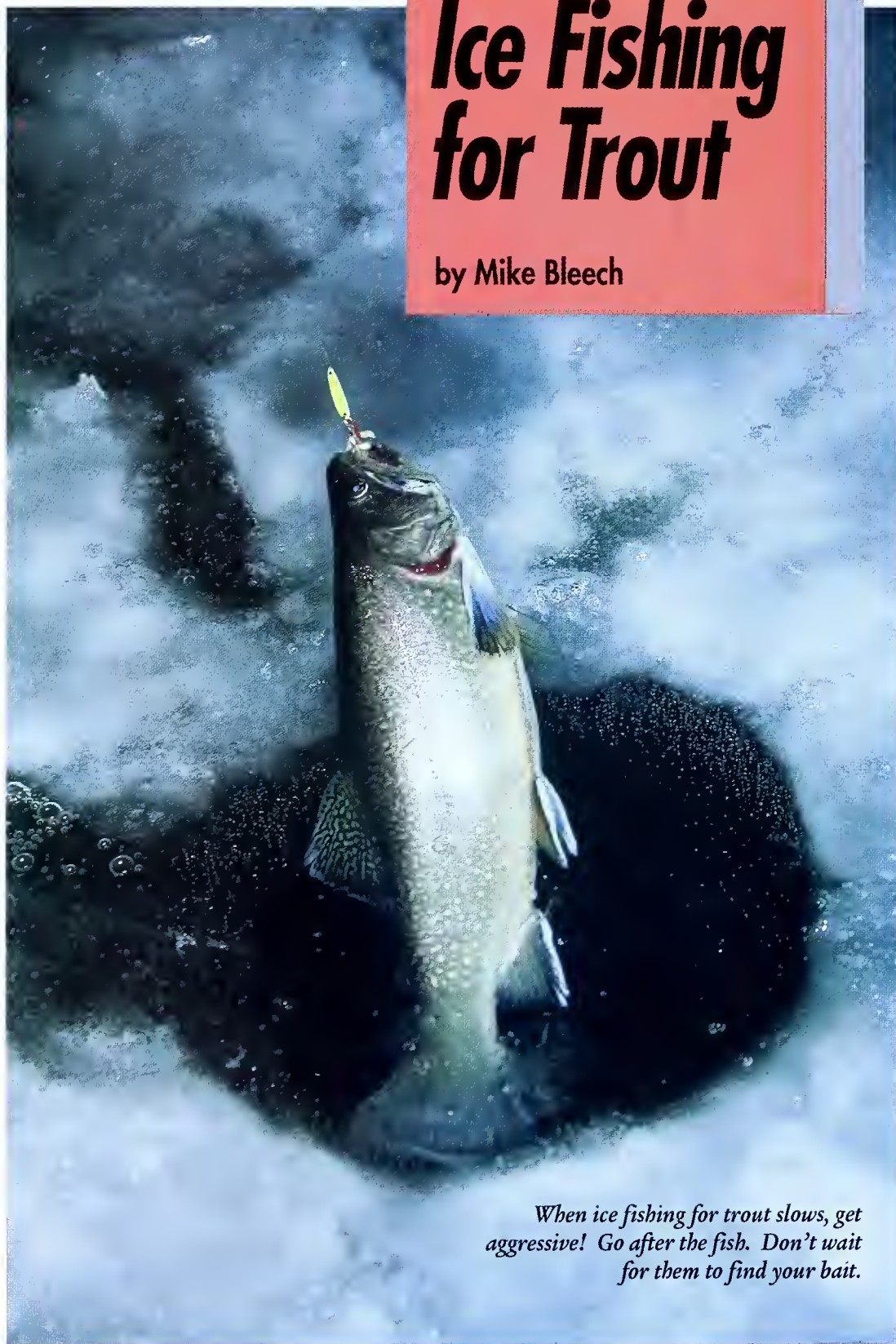


The author thanks Rick Carlson, Director of Policy of the PA Dept. of Conservation & Natural Resources, as well as John Arway, Chief of the Division of Environmental Services, Pennsylvania Fish & Boat Commission, for their assistance in preparing this article. For more information, write: Pennsylvania Department of Conservation & Natural Resources, Coldwater Heritage Partnership, P.O. Box 8475, Harrisburg, PA 17105-2316; phone: (717) 787-2316.

AGGRESSIVE

Ice Fishing for Trout

by Mike Bleech



When ice fishing for trout slows, get aggressive! Go after the fish. Don't wait for them to find your bait.

The dead of winter had taken hold of Chapman Lake. Ice was 14 inches thick. Dull-gray sky made the powdery snow appear drab. A dozen other ice anglers spread around the lake in small groups sat on their buckets showing little enthusiasm. Mostly the air was calm, except for brief gusts that blew snow over the holes and quickly formed a thin layer of ice. Worth Hammond and I had drilled eight holes, six for tip-ups and two for jigging, but we gave up soon on the jigging, waiting for something to happen with the tip-ups, waiting for some indication that the trout that remained from the last stocking were getting active.

Our attitudes changed when we watched a friend and his sons approaching with their ice fishing gear.

"This is their first try at ice fishing," Worth said. "It would sure be nice if they could catch some trout."

With this as an incentive, we set about more aggressively looking for trout. Beginning over a rocky point, we drilled a line of holes that crossed the deepest water in the lake, enough holes to move the tip-ups around and have several left for jigging—enough holes to make our shoulders ache from turning the auger.

We concentrated on the jigging, working each hole from just under the ice to the bottom, then back up to the ice. Trout use the entire water column under ice. Sometimes you might notice a pattern, most hits near the bottom, or a foot under the ice, but often the action is scattered between the top and the bottom.

While Worth's friend and his boys were getting set up, we found three active holes, and then turned the action over to the boys. Their limits of brook trout were soon flopping on the ice, and they were hooked on ice fishing.

What a difference an aggressive approach had made. Perhaps we would have caught trout, anyway. But one only has to understand basic probability to realize that such an aggressive approach to ice fishing for trout is far more likely to result in success than a passive approach. The odds of a hungry trout seeing a jig moved from hole to hole,

checking all depths, are far more likely than setting a bait through a hole and waiting for a trout to find it.

And then the odds get far better still when a less mathematical factor is added, a knowledge of the places where you are most likely to encounter trout during winter.

Typical Pennsylvania lakes that are stocked with trout for the ice fishing season present a different situation during winter than during summer. During summer, much of the water in these lakes is too warm. Trout avoid shallow water where they are vulnerable to land and airborne predators. They tend to congregate in deeper water, near feeder streams, or around underwater springs. But trout might be anywhere during winter. None of the water is too warm, or too cold, or too shallow. The difference in temperature between top and bottom is probably about six degrees, or less. The cover of ice reduces their wariness of shallow water.

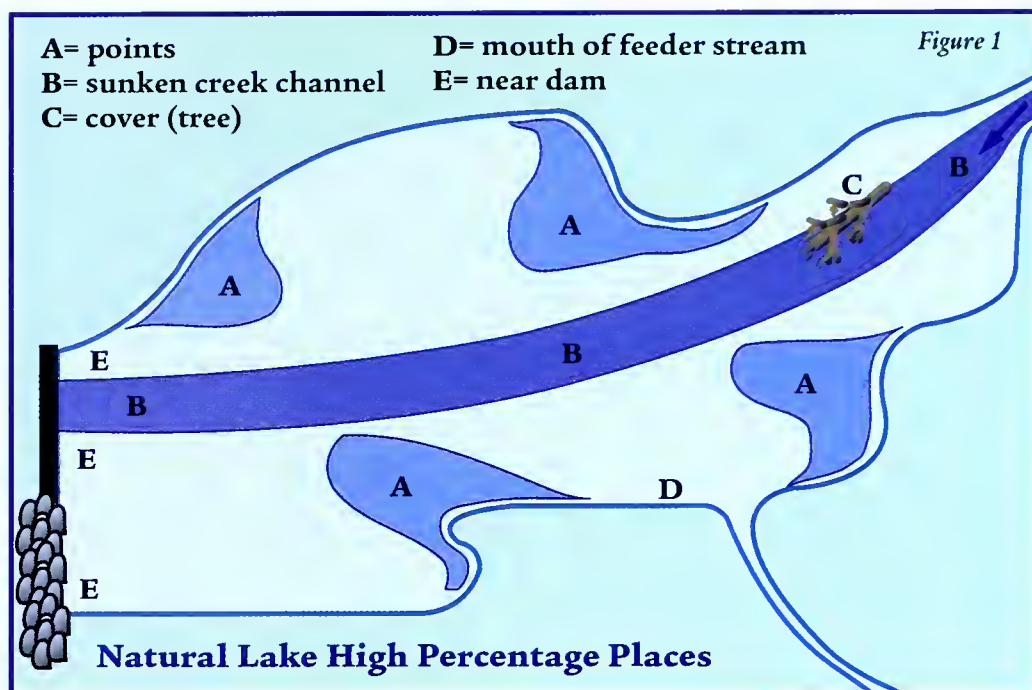
“High-percentage” places

Trout might be anywhere under the ice. Still, there are places they are more apt to be, what I call “high-percentage” places. An aggressive, systematic approach begins at these high-percentage places. This is less important immediately following winter stocking, while the lake is full of trout, and far more important as the number of trout in a lake diminishes.

It takes a while for trout to find the places they like best. For a while, many trout mill around in the area where they were stocked. By the time they are congregated in the high-percentage places, most of the recently stocked trout have been caught, so much of the lake might be completely void of trout.

What are the high-percentage places? In manmade lakes (see Figure 1), the places I check first are a) the area where trout were most recently stocked, b) underwater points, c) the sunken creek channel, d) near small tributaries, e) by cover, f) off points that do not extend underwater, and g) near the dam.

Points, whether they extend underwater or not, act as half a funnel. Any trout moving toward the point must swim along, then past the tip of the point, making the tip of the point a most likely place to intercept moving trout. Points that extend underwater provide a structure that might hold trout, because so many gamefish appear to like irregular structure.



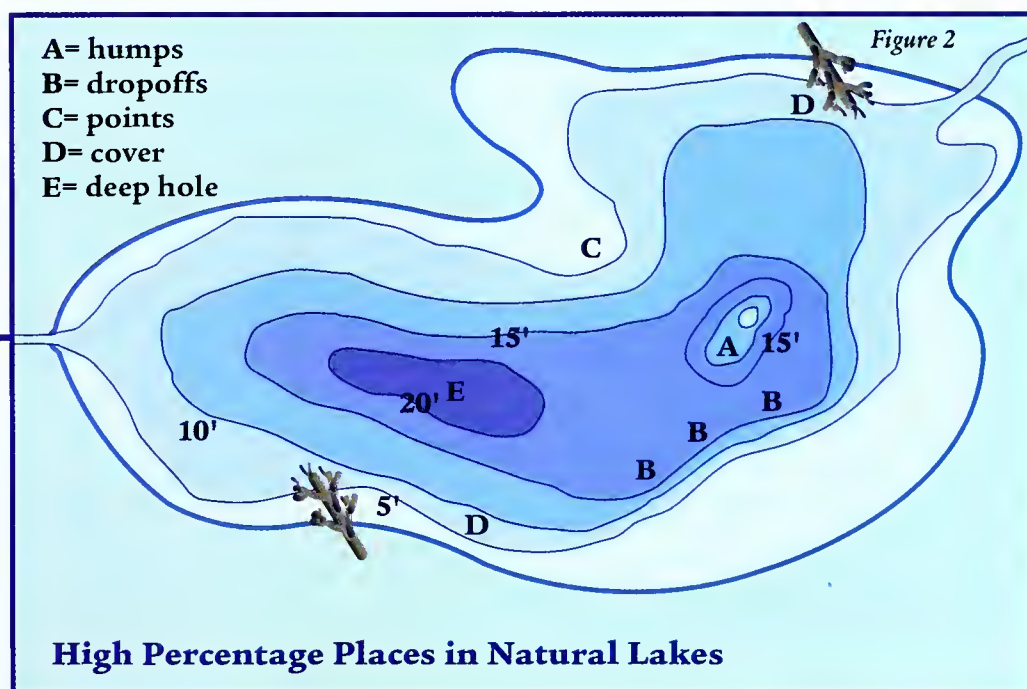
Sunken creek channels extend the entire length of most manmade lakes. In places where the creek channel has steep, high banks, look for trout when you can't find them anywhere else. When whatever conditions trout find displeasing occur, they retreat into such places that are the deepest in the area. If nothing else works, spend your remaining time there, drilling holes until you find some irregularity in the bank that offers trout cover, or refuge.

Most of the manmade trout lakes I have fished are not very deep, maybe 15 feet to 30 feet at the dam. This alone makes these places worth fishing because some trout usually inhabit this deepest water, if there is sufficient oxygen. Also, the breast of the dam might be attractive structure, particularly if it is rock.

In natural lakes (see Figure 2), typical high-percentage places are a) the area where trout were most recently stocked, b) humps, c) drop-offs, d) points, e) by cover, and f) in the deeper holes.

In any case, the highest-percentage places, the places you want to check first, are the closest of these high-percentage places to the area where trout were most recently stocked.

The only difference, as far as ice fishing is concerned, between natural and manmade lakes is that manmade lakes usually are constructed in creek valleys, and their structure is that of a valley, where most structure is extensions of the shoreline structure. The deepest water is usually adjacent to the dam. Natural lakes, several in Pennsylvania of glacial origin, have less predictable structure.



AGGRESSIVE

Ice Fishing for Trout

There might not be a feeder creek of appreciable size. Some underwater structure might be predictable from the shoreline, but there might be humps, holes or drop-offs with no apparent relationship to structure above the waterline.

Any irregular structure—humps, dropoffs, sunken creek channels, underwater points—is likely to hold trout. Structure that rises above surrounding structure may be the best place to find aggressive trout. Structure that drops below adjacent cover is more likely to hold inactive trout. Of course, you want to find active trout. But when it appears that no trout are active, at least you want to put your baits or lures in front of trout.

Some cover is extremely likely to hold trout. A good share of the cover you find in manmade lakes, to a lesser extent in natural lakes, is trees that floated into the lake when the feeder creek was swollen and then sank or became lodged on the lake bottom. Even an old log with no limbs might hold several trout. Trees that have fallen into the lake along the shoreline can be excellent if they fell into adequately deep water.

Be cautious when ice fishing near wood cover, though. Ice generally melts more quickly there because the wood holds heat.

Also be extremely cautious near feeder creeks because they can seriously weaken ice. Stay away from the area right at the mouth. Approach the general area slowly, drilling test holes every few feet, and closer together as you get closer to the feeder. Stay far away from any feeder with strong flow. Be wary of discolored ice.

Aggressive jigging

How fast is aggressive ice fishing? Ponder a couple of possible situations: Perhaps trout are active, but heavy fishing pressure has greatly thinned the trout population. Or perhaps only a small portion of the trout are active. Maybe the trout need a bit of coaxing. Aggressive ice fishing is probably the best approach any time fishing is not fast and easy. Your best odds for intercepting an active, or at least receptive, trout are by covering as much water as possible.

However, you must strike a balance between fishing too fast and wasting too much time in one place. Unless all of your hits come at the first opportunity for the trout to see the lure, assume that they need to be enticed.



Start by jigging just under the ice for 10 to 15 seconds. Then lower the jig about 18 inches and jig 10 to 15 seconds there. Repeat this procedure until the jig is just a few inches above the bottom, then do the same thing on the way up. Sometimes trout show a distinct preference for the direction the jig is moving, down or up. Often it appears that trout follow a jig up and strike just as it is about to escape up the hole.

Be alert for a depth pattern. Quite often, the majority of hits occur either close to the bottom or just under the ice. Sometimes there is no pattern. But you might find most trout at a depth of 3 feet, or 6 feet, or 11 feet, wherever. If this is the case, after a few hits at one depth, keep your jig at that depth most of the time.

Trout can be just as fussy about which jig they might strike under the ice as they can be about which fly they might rise to in June. The common basic types of jigs used for trout are leadheads, spoons and swimming jigs. Each is available in a huge variety of color patterns, which certainly can make a big difference in your catch. It may be that trout like certain colors best, and that their mood changes from time to time. Or it might be a simple matter of visibility. I suspect it is a combination of these things.

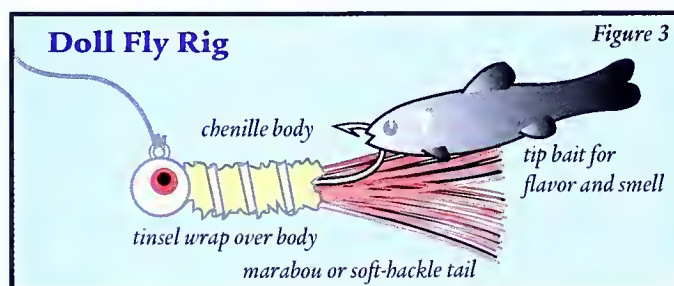
Leadheads are the least expensive ice fishing jigs, though you will seldom lose a jig while ice fishing for trout, unless you jig through the limbs of a tree. By carrying several different soft-plastic bodies, you can have a great color assortment for just a few dollars. However, I have had much better success using “doll flies” that I tie (see Figure 3). These usually combine color and flash either by spiraling tinsel around a chenille body or adding reflective material to the tail.

I suggest having some jigs with silver flash and some with gold flash. Red, orange, blue, green, yellow, brown, black, white and chartreuse should be included in the color selection. Color combinations are usually better than solid colors, except that you might want a few solid black and brown jigs for trout that have been in the lake a while and have become accustomed to natural food.

Jigging action should be varied until the trout tell you what they like. Sometimes all it takes is a little wiggle like you might use for bluegills. Sometimes they want an aggressive jigging action, moving the jig up and down several inches. One productive action I use is an occasional sharp jerk that lifts the jig a foot or more, and then quickly lowering the rod tip so the jig drops on a slack line. Between these sharp jigs I wiggle the jig.

Jigging spoons are used the same as leadheads. The only differences are that they hang vertically from the line instead of horizontally, and they usually—not always—have more flash. I use jigging spoons about 75 percent of the time I ice fish for trout.

Swimming lures, like airplane jigs and Rapala jigs, are the only ice jigs that have some action other than that applied directly with the jigging rod. Because of their shape, a sharp upward jerk of the rod sends these lures off the exact vertical line on which they were



Success on Laurel Run Reservoir, Elk County. Remember that in aggressive jigging your best bet for finding trout is to cover as much water as possible.

Be Aggressive and Be Safe

Let these reminders help you increase your safety on the ice.

- ✓ Lakes don't freeze uniformly. Early and late in the season, ice that's safe in the morning may be dangerous by late afternoon.
- ✓ Prolonged cold weather makes safe, thick ice. Use an auger to test ice. Four inches of clear, blue ice is probably safe for lone anglers and small groups of fishermen.
- ✓ Single, unbroken pressure cracks in ice are probably safe to cross, but stay away from the areas where cracks meet or intersect.
- ✓ Be extremely wary of places where water levels change, such as rivers, streams, inlets, outlets, coves, eddies and springs. Moving water erodes and weakens ice from beneath. So does wind pushing water under ice.
- ✓ Avoid areas with stick-ups. Protruding logs, brush, plants and docks absorb heat from the sun.
- ✓ Dark areas of ice may reveal places where ice is thin. Avoid these spots.
- ✓ Ice awls can save your life. To make your own, see page 53.



lifted. Then the rod tip is quickly lowered so the jigs fall on slack line. Once again, their shape causes them to glide away from a straight drop, and they "swim" for a short while somewhat in the manner of a loose pendulum. You must pause several seconds between lifts for these lures to work as they were designed.

I have observed many anglers using these lures the same way they would use leadheads or spoons, which is fine and

will catch trout. But it is the swimming action that makes these lures different and is their purpose.

Adding bait to swimming jigs reduces their swimming action. Use just a small piece of bait to maintain adequate swimming action. I like either the head or tail of a small minnow on the middle hook of a Rapala jig. A whole small minnow can be used on an airplane jig.

Unless the trout are really active and abundant, in which case there is no need for aggressive ice fishing, always tip any jig with some sort of bait. Minnows or maggots are my usual choices. If the minnows are more than a couple of inches long, I use only half a minnow, unless I am interested only in big trout. Pinching the minnows in half makes them shed scales when they are jigged, and probably makes them smell stronger. There is no need for lively minnows because jigging gives the rig motion. The minnows should be fresh, though.

If you look at aggressive ice fishing for trout as more work, then maybe this is not the approach you should take to this sport. But if you look at it more as fun, then get ready for your best winter of ice fishing. And maybe you can adapt the same strategy to ice fish for other fishes. The idea is to give it your best shot, give it in the best places, and give it in as many places as possible.



Chapman Lake, Chapman State Park, Warren County.



WINTERIZE

Your Small Boat

by Art Michaels

"Emergency service calls" is what Rico Silvera calls it when a guy who hasn't touched his rig since his last trip in the fall puts his boat in the water in the spring. Silvera, a transplanted Pennsylvanian, owns a boat dealership in Lenoir City, Tennessee. "Then he calls us and says, 'This doesn't work, and that doesn't work.' Too bad, because the right winterizing maintenance in the fall or early winter prevents most problems when you're ready to fish again in the spring," Silvera says.

Silvera divides winterizing a small boat into three areas: boat, outboard and trailer. Consider Silvera's ideas on how to avoid becoming one of his "emergency service calls." A small investment even now—it's probably not too late—pays big dividends next spring.

Boat

"First, pull the plug so there's no chance of the bilge holding water that might freeze during the winter," Silvera says. Besides living in Pennsylvania, Silvera has lived in New York state, so he's familiar with harsh, cold winters and the damage they can inflict on neglected boats.

Silvera also suggests covering your boat. This stops animals from taking up residence in your boat, and it prevents the sun's ultraviolet damage to the boat interior. A fabric cover is best—a material that allows evaporation.

"It's important to go through the boat and make sure you leave nothing aboard that's wet," Silvera says. "Drain all the livewells thoroughly. Wash off mud, sand and aquatic vegetation from the anchor and the line, and air-dry the anchor line and mooring lines."



*It's probably not too late to winterize your boat.
Protect your investment and start next season without a problem.*

Silvera recommends removing the batteries and all electronics from the boat and bringing them indoors. He says it's best to store electronics and batteries in a place with a fairly constant temperature. He also says it's wise to avoid "temperature cycling" in a storage place.

Temperature cycling, says Silvera, is the rising and falling of the air temperature. It can be 75 degrees inside your boat during the daytime, but at night the temperature can drop below freezing. Temperature cycling damages electronics by causing condensation and moisture to form on the inside of the equipment. It can shorten the life of batteries by robbing them of their ability to hold a charge.

Make sure the battery terminals are clean when you store your batteries. Sand

the terminals with fine sandpaper and then coat them lightly with petroleum jelly. Charge the batteries fully, too.

Remove the batteries from items like portable radios, flashlights and portable navigation lights. Install fresh replacements this spring.

If you live near saltwater or brackish water, get underneath the console and spray WD-40 or a similar anti-corrosive wa-

ter-displacing lubricant lightly on the back of the switch panel. This precaution prevents corrosion and rust.

If the boat is covered, the wiring needs no special attention now except to ensure that it's dry. However, when you remove the electronics from the boat, label the wires so you remember which wire goes where. Masking tape labeled with a waterproof pen does the trick.

It's also wise at this time to clean the deck and carpeting with warm water, mild soap and a soft brush, and vacuum the boat's interior. Shampooing a carpeted deck can bring a trampled, weathered deck back to life.

Outboard

Silvera says it's best to store gas tanks full to prevent condensation. Inspect the bottom and lower portion of the tank for rust and corrosion. Remove any rust and touch up the tank with paint.

Silvera says you have two options with outboards. "First, you can disconnect the fuel line and run the engine until the carburetors are dry and the motor stops," says Silvera. "However, I don't recommend this procedure with oil-injected engines because it causes plug-fouling and hard starting in the spring.

"Instead," Silvera says, "add fuel stabilizer to the full gas



Check your battery's charge every month or so with a hydrometer.

tank and run the motor on a water source—back up the motor into the waterway or hook up the engine to a hose. Run it for about 10 minutes. This prevents the gas from breaking down.”

He also suggests that if you plan to leave your rig unused for more than about 90 days, fog the engine. This prevents corrosion from occurring inside the engine. Use a fogging oil specially designed for this purpose. Storage Seal by Quicksilver and OMC’s Storage Fogging Oil are two such products. You feed it through the carburetor throats while the engine runs until you bog the engine down and it stops. This puts a lubricating oil coating on all internal components so they don’t rust or stick. Follow the directions on the can.

“Remember that when you run the engine again, you remove this coating,” Silvera says. “If you fish during the winter on a nice day when the bite is on after you’ve winterized your engine, re-fog the engine when you store the boat again for the harshest part of the winter.”

Silvera also recommends changing the lower unit oil at this time. To do so, remove the oil vent screws and let the oil drain into a clear glass jar.

“Lower unit gear oil shouldn’t look like coffee with double cream,” Silvera says. “If it does, it means that water is contaminating the oil, and you probably have a problem with the seals. In this case, take the engine to a dealer. In fact, take the motor to a dealer with any indication of water or metal filings contaminating the lower unit gear oil.”

Silvera says to extend the steering cable fully, which means turning the steering wheel hard to the right. He recommends wiping WD-40 on the exposed part of

the cable and adding grease to all the grease fittings in the steering assembly.

“It’s important to extend the cable as far as possible and clean it to prevent a buildup of dirt and gunk,” Silvera says.


If you store the engine outside in the “up” position, or trailering position, place a plastic garbage bag over the lower unit so that water doesn’t enter the exhaust cavity. The “up” position turns the exhaust cavity into a catch basin for water. Water can freeze there and crack the lower unit. It’s best to store the engine in the “run” position with the lower unit uncovered because an outboard’s cooling system is self-draining.

Trailer

“If you store your trailer for a long time, block the trailer so it doesn’t sit on the tires, causing flat spots and dry rot,” Silvera says. Store the trailer for adequate drainage so that the bow is slightly higher than the stern.

“Check the lug nuts and tighten them, and make sure the tires and the spare are fully inflated. The correct inflation pressure is molded into the sidewall.” Now is a good time to rotate the trailer tires.

This is also the time to add grease to the bearing protectors, or pull the wheels and repack the bearings. Your dealer can advise you whether repacking or replacement is appropriate. The dealer can best perform this maintenance because repacking or replacing the hub’s inner parts requires special tools for components with specific tolerances.

Check the lights to make sure no water remains in the housings. This is also the time to check your winch cable or rope. If it’s at all frayed, replace it. 



Renew the hubs so that no water remains in there during the winter. Fresh grease and, if necessary, replacement parts are in order.

Equipment Check

When you winterize your boat, remove your boat’s safety equipment and check or replace each item.

- ✓ Check the expiration date on your flares. If they are expired, or if they will expire before or during the next season, don’t throw them away. Keep them to use first in an emergency. Buy new flares with an expiration date good for at least three years. Replace flares that show signs of leakage or delamination of the case.
- ✓ Remove all the lifejackets and cushions from the boat and inspect them for rips, wear, and torn, broken or missing hardware. Wearable lifejackets and throwable devices, like some seat cushions, count toward the legal requirement only when they are in good, serviceable condition.
- ✓ Remove your first aid kit from the boat and replenish supplies.



- ✓ Remove your fire extinguisher from the boat and check its condition and pressure. If the pressure gauge indicator points in the green area, the extinguisher is usable. Most small-boat marine fire extinguishers use a dry chemical that can harden and cake. If your extinguisher uses a dry chemical, turn the extinguisher upside down and bang the bottom with a rubber mallet. Then turn it right-side up and bang the sides a few times.—AM.

MUSSELS

by Karl Blankenship



Standing knee-deep in Middle Creek, Art Bogan was sticking his head in a bucket. It is standard equipment, and standard operating procedure, for his line of work. Bogan is a malacologist, someone who studies mollusks, a variety of aquatic animal that includes clams, mussels and oysters.

To find them, he uses a custom-designed bucket: The bottom has been cut out and replaced with a glued-in piece of clear plastic. When the modified bucket is pushed into the water, Bogan's view of river and stream bottoms is as clear as it would be if he were using a giant scuba mask.

It takes skill to spot a mussel in a rocky stream bottom. To the untrained eye, there appears to be nothing but rocks. But in Middle Creek, Bogan was finding *Sphaerium*-fingernail clams. "Look at that," he said, peering through the bucket. "That's typically what you see—a little black crack in the sand."

Indeed, the tip of a clam was poking just above the sand. The rest was buried in stream bottom sediment.

Middle Creek is a tributary of the

Susquehanna River that rolls through Snyder County in central Pennsylvania. Bogan was looking for clams as part of a project supported by the Fish and Boat Commission and the Wild Resource Conservation Fund to inventory the mussel species found throughout the state.

Such a comprehensive study has been done only once before. In the early 1900s, Arnold Ortmann of the Carnegie Museum waded through Pennsylvania waterways and identified 65 species. "For the first time since the beginning of this century, we're going to have a good handle on where mussels are still left, which species remain, and at what levels," said Andrew Shiels, Fish and Boat Commission Herpetology and Endangered Species Coordinator.

As Bogan works his way across the state, the dire situation of many native freshwater mussels is becoming abundantly clear. Since Ortmann did his work, 22 species have vanished from Pennsylvania, and two more are listed as endangered. To Bogan and others who study mussels, these facts are alarming. "People would be terribly upset if suddenly we lost that many of our woodpeckers," he said.

But many people couldn't care less. When people see Bogan standing bent-over in bone-chilling water and staring into a bucket, they often ask what he is doing. After he tells them, they often are left shaking their heads.

"It's pretty hard to get empathy for a clam," Bogan says. Clams are not cute and cuddly. In fact, Bogan points out, they don't even have a head. "There are two shells and a foot and a mouth and two pairs of gills," he said, "but no head." Even snails, which Bogan also takes note of in streams, have heads.

To the casual observer, Bogan acknowledges, the life of a mussel can be described simply: "They imitate a pet rock." In research circles, exciting questions focus on such things as why some species pull themselves out of the sediment at night to engage in mating rituals while other species do so during the day.



Bivalves

But the sedentary lifestyle of the mussel is misleading. The freshwater mussels of Pennsylvania and North America are bivalves, which means they have a pair of shells, each of which is a large valve, joined by a hinge. Bivalves are filter feeders: They draw water through their valves and filter out particles, such as algae, to eat.

"Ninety-nine percent of your anglers are probably not even aware these clams are out there," Bogan said, "but they're an active part of the natural filtering system of the river." Water downstream of a large clam bed is measurably cleaner than upstream water.

In fact, large numbers of bivalves can filter huge amounts of water. Some scientists believe that oysters once may have filtered all the water in Chesapeake Bay in just four days. Today, it takes the depleted oyster stock about a year to do the same job. As a result, taxpayers are spending tens of millions of dollars to remove pollutants that cause large algae blooms and destroy the bay's water quality.

Bivalves in freshwater streams are thought to play much of the same role, but studies have only begun in recent years. "The amount we don't know about the life history, behavior and biology of these things is frightening," Bogan says.

What he and others are certain about is that the continent's abundant variety of freshwater mussels is decreasing at an alarming rate. North America is home to about 300 species of freshwater mussels, more than any other continent. Over the course of millions of years, they have evolved into unique populations from their saltwater ancestors as oceans rose and fell around the Appalachian Mountains, isolating scattered populations here and there throughout the range.

For reasons not fully understood, small mussels must hitch rides—in effect becoming a parasite—on fish if they are to survive. Eventually, they drop off at a place where they will spend the rest of their lives. And their lives can be long: Some live more than a century.

But adaptations that allowed them to survive the glacial rate of change during the ice ages have not helped the mussels survive the rapid degradation of their streams in the 19th and 20th centuries. More than two-fifths of the native North American species are either extinct or in serious danger.

Early in this century, mussel pioneer

Ortmann feared the worst, and as far back as 1909 warned that "the worst damage to our fauna is done by the pollution of the streams."

Mussels may filter the water, but many rivers became so polluted that mussels were overwhelmed. Some were smothered by silt washed from deforested lands. Some were killed by acidic water draining from mines. Others were simply poisoned by assorted pollutants. In some streams, remnant populations have stayed around for decades, but something has kept any young from surviving.

Bogan has found that the most severely



affected rivers in Pennsylvania are the Monongahela and the southern portion of the Allegheny where few species can be found. "Ortmann said they were dead in 1909, and they're still dead," Bogan said. The Monongahela once had more than 40 clam species, more than any other in the state. Today, the river has been heavily affected by pollution, and some tributaries run red as the result of acid mine drainage.

Bright spot in Pennsylvania

The bright spot in the state is French Creek, a northern tributary of the Allegheny, where all 24 native species remain. In the Susquehanna River, Bogan has been able to find 11 of the 12 species historically found in that watershed, though some areas are better than others. For example, he has found good spots in parts of the North Branch and the Juniata River (the Susquehanna's largest tributary), while portions of the West Branch are decimated as the result of acid mine drainage and other areas, such as Lancaster County, have been affected by farm runoff. Bogan is still completing field work in the remainder of the state.

Environmental laws passed in recent

decades are helping to clean up the state's rivers and streams to the point where native mussel populations could thrive again. In fact, two species that had once been wiped out have returned.

Role of zebra mussels

But Bogan and others are not optimistic about the future. Just as cleaner water brought some hope, a cargo ship arrived, carrying in its hold a menace from Europe: the zebra mussel.

With no natural predators, the mussel has spread throughout the Great Lakes, much of the Mississippi River drainage, the Hudson River and the Erie Canal. Last year, zebra mussels moving up the Ohio River were reported in Pennsylvania. In previous years, they have been reported in the headwaters of the Susquehanna River in New York.

As many as 11,000 zebra mussels stacked atop a single native clam have been reported. They filter all the food out of the water before it can reach the clam, causing it to starve. Dead native mussels, coated with zebra mussels, routinely turn up on the beaches along Lake Erie.

In places, things are so bad that scientists have pulled the last survivors of some species out of the water, hoping to breed them in captivity so that someday, if the tide of zebra mussels falls back or reaches some kind of equilibrium, they might be returned to the rivers.

In the future, scientists will be able to use Bogan's data to measure the zebra mussel's effect, just as Bogan uses Ortmann's data to assess how streams have been changed during the past century.

A stream's legacy quickly becomes clear after Bogan wades in. He combs a site that appears to have good habitat potential for about 30 minutes, covering a stretch of about 100 yards, looking for clams. Sometimes, he finds only shells, remnants of a vanished population, a solid clue that something has happened to the water quality. At many of the sites where Ortmann recorded mussel populations, Bogan has found nothing.

"They are a tremendous environmental indicator," Bogan said. "There are a lot of species that cannot withstand even a minor disturbance in the amount of oxygen, acidity, silt and sedimentation in the water. They aren't as cuddly as a panda. They aren't as majestic as an eagle. But they're still a very important part of the freshwater ecosystem."



HORSEPOWER

How Much Do You Really Need?

by Bob Stearns

Have we gone nuts over horsepower for our fishing boats? I sometimes wonder. At times it certainly appears so, especially if you hang around certain popular unlimited horsepower waterways on weekends. Perhaps this apparent craze is just a marine counter-revolution to speed restrictions on the highway. An argument to support this could come via the observation that "hot" boats have only recently begun to become somewhat popular in Europe, where there are still some roads with no speed limits and the fuel prices are a lot higher.

Going fast to get to a fishing spot on open, uncrowded water, where it's safe, can be a blast, and there's no sin in having a lot of ponies aboard if there's a sensible hand on the throttle. Long runs are necessary on some waterways, so speed can increase time on the water—but always at a price.

So the "proper" horsepower for your boat now becomes a relative thing and depends entirely on what you intend to do with it.

If slow trolling with only a short run to where you fish or cruise is what you like to do, then you certainly don't need a lot of Detroit iron to push you around. You can comfortably get by with just enough horsepower to provide optimum displacement speed to get you there, and you get the last laugh every time you pass the fuel dock. There is an easy way to estimate these requirements accurately, and I'll get to that shortly.

Planing speeds obviously require more horsepower. For a lot of wide-ranging fishing that covers a large area, you'll want a good turn of speed. But unless you have extremely deep pockets you still want the right horsepower for both efficient cruising speeds and the best possible planing miles per gallon (mpg).

Keep in mind that planing speeds don't necessarily mean high speed. Most boats begin to plane effectively at around 15 to 16 mph, and actually reach their most efficient on-plane speed at around

25 to 30 mph. It is also true that a hull designed for planing speeds realizes only somewhat less than a 50 percent increase in top speed when the horsepower is doubled. On the other hand, doubling the horsepower means almost doubling fuel consumption, and that's certainly no bargain if all those extra (thirsty) horses can only get you to a spot a few minutes earlier.

Distance becomes the deciding factor. Facing a run of 10 to 15 miles, a boat cruising at 25 to 30 mph is going to get there in only a matter of minutes. Thus, there is a real need for more speed when water conditions permit. Unfortunately, big engines also add up to extravagant fuel consumption at slow-trolling-speeds, unless one can be shut down or a smaller kicker is carried just for that purpose.

As a rule of thumb, horsepower for horsepower, outboards and stern drives get better fuel economy at cruising speeds than inboards. When it comes to trolling, 4-cycle mills yield by far the best economy. That includes the new 4-cycle outboards as well. When it comes to 2-cycle engines, of course, a small outboard runs slowly more efficiently than a big outboard, even on a fairly big boat.

For example, at slow speeds a 40 hp outboard burns just a little over a half-gallon per hour, a 60 uses about .8 to 1.0 gph, a 100 burns 1.5 to 2 gph, and a 200 needs 3 to 4 gph to keep going even at very slow speeds. Inboards, stern drives and the new 4-cycle outboards of the same horsepower tend to troll for less than half of that.

Rule of 30

There's an easy way to estimate the horsepower necessary to get into the max efficiency range for planing boats. It has been around forever, and it's sometimes called the Rule of 30. The rule was originally developed for inboard engines, but it still applies to all engines. What it means is that if the gross boat weight to engine horsepower ratio is 30:1 (i.e., a 3,000-pound rig with 100 hp), you can reasonably expect a full throttle speed of at least 30 mph. Many of the newer boats with more efficient hulls do better than that, but in general a top speed of 30 means a cruise of 25 at around 75 to 80 percent power. It works reasonably well with both 2- and 4-cycle power, and allows the engine to run at rpms low enough to provide a long, usable life. And for many modern engines, especially loop-charged outboards, backing off the throttle from 100 to 75 percent (e.g., from 5,500 to 4,000 rpm) means a reduction of 35 percent or more in fuel consumption.

Obviously, we can usually get by with less horsepower than we might otherwise believe is necessary, if we consider all the factors involved. As an example, consider a 23-foot cabin boat I once tested that was powered by a pair of 75 hp outboards (it was rated for up to 235 hp). Quite to our surprise, we found that we could easily get the boat on plane and up to a measured top speed of 23 mph with a single 75 hp outboard! And that was with a full tank of gas (80-gallon) and four adults, plus other gear.





photos-Art Michaels

That boat weighed 4,640 pounds with that load, and possibly the hull (a modified deep-vee) was a little more efficient than some with a stronger vee in the bottom. Nevertheless, there's still a big difference between 75 and 235 horses. Incidentally, top speed with both 75s and the same load was around 37.6 mph. And as you'd expect, slow trolling all day with a single 75 didn't require enough gasoline to talk about.

For that particular boat, with twin 75s producing a total of 150 hp, our weight/horsepower ratio was 31:1. That's quite a bit better than the Rule of 30 would seem to predict, but because that ratio was originally developed for inboards, this really shouldn't come as a surprise. We also measured the rig's best fuel economy for cruising at speeds of 24 to 30 mph (4,000 to 5,000 rpm, 3.75 to 3.06 mpg)—obviously a far more efficient horsepower setup than a single 200, and every bit as good (if not a tad better) than a single 150 could do.

Displacement speeds

What about displacement speeds and horsepower requirements? Hull length is everything here, and there's a formula that tells you how to estimate accurately the maximum efficient displacement speed for most hulls. It goes like this: $S = 1.44$ times the square root of L . S is the speed in mph and L is the waterline length in feet.

For example, a boat with a 16-foot waterline length would have a maximum efficient displacement hull speed of 1.44×4 , or 5.8 mph. Longer means faster, even often with only slightly more hp. Best displacement speed for a 20-footer is 6.4 mph, and for a 30-foot vessel, 7.9 mph.

Trying to push that hull past its most efficient displacement speed becomes an expensive proposition unless you increase the speed to the point at which the hull is on plane (about 15 to 16 mph for most small boats). For example, it takes only about 10 hp running at 75 percent throttle to get 6 to 7 mph with that 16-footer, and a 20-footer could do it with about 20.

On the other hand, when it comes to displacement speeds, doubling the horse-

power would only add perhaps another one or two mph rather than a 50 percent increase (unless the increase is enough to get the boat on plane). Weight has virtually no effect one way or another on displacement speeds, but when getting on plane it can be the whole ball game. That's why the world's shipping is all done at displacement speeds (which, by the way, is 25 mph for a 300-footer).

And that is also why, for example, a very light aluminum 16-footer could get on plane with as little as 25 to 30 hp, while a heavy fiberglass rig of the same dimensions might require 40 to 50.

All of this assumes the correct choice of propeller. The wrong size, or if it's damaged or worn, can destroy the efficiency of the engine and you'll certainly need extra horsepower to overcome the inherent

losses of a bad prop. The difference can be considerable—and expensive.

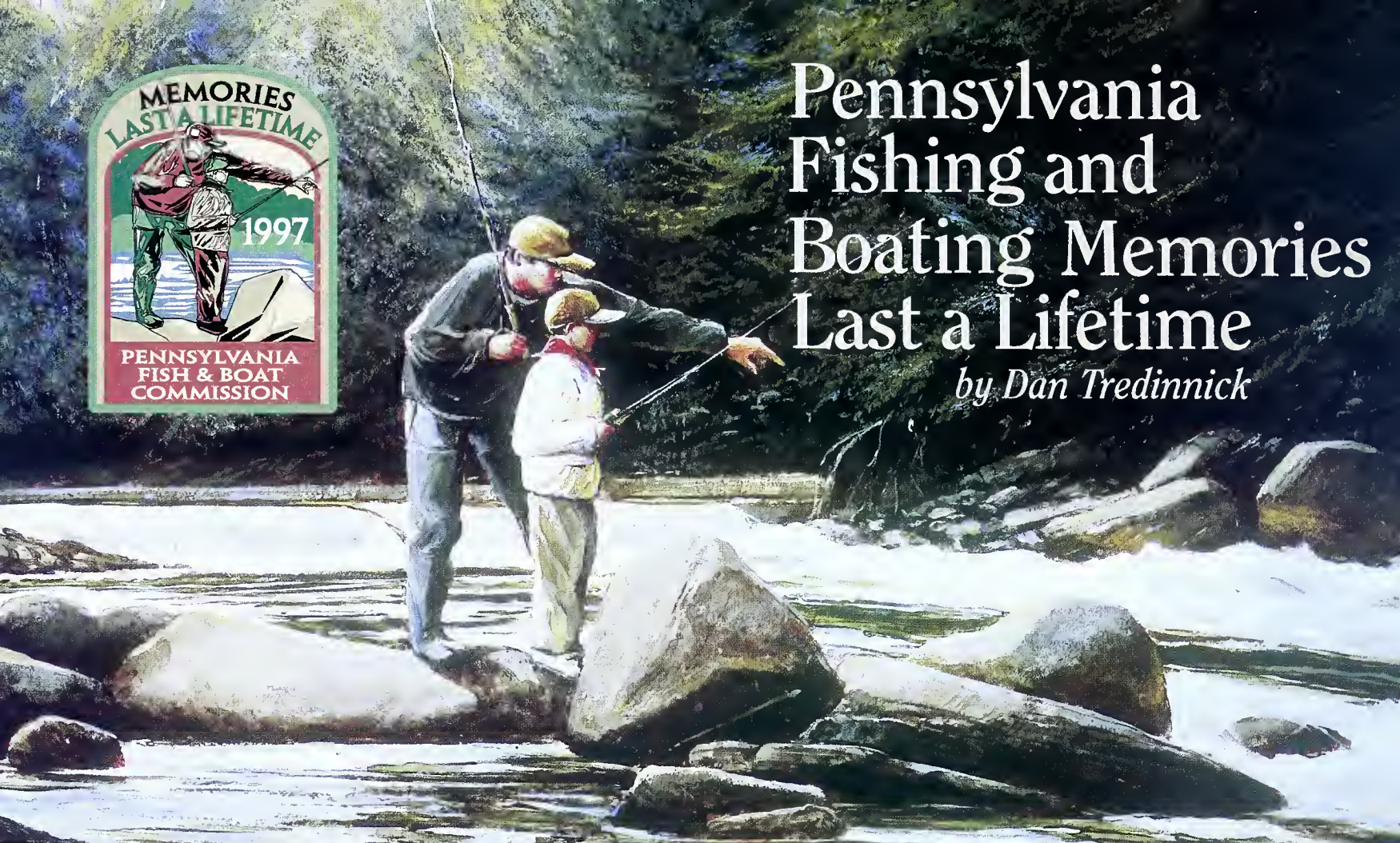
But if you use this information as the basic approach toward selecting the right engine for your rig, you won't go wrong. Especially if you keep in mind that not only does a larger engine burn more gas, it also costs more. And to make matters worse, it usually weighs more. So taking a close look at the bottom line, why spend the extra bucks to buy more horsepower than you really need?





Pennsylvania Fishing and Boating Memories Last a Lifetime

by Dan Tredinnick



“Time is but the stream I go a-fishing in.” So penned author Henry David Thoreau, in those nine little words capturing for an eternity the fluid nature of an instant. Moments become minutes, days turn to weeks, years blur into a lifetime. The waters of time roll ever onward, washing over us. These waters do not roar like a mighty river, and if not for occasional glimpses of our changing reflections on the glassy surfaces, the gentle flow of years might pass us by unnoticed. These placid waters are fertile, rich with vivid recollections of days gone by. And when we go a-fishing in this stream, we are rewarded with bountiful catches, each cast back in time producing yet another memory.

Funny how easily we can call forth past events. Just think for a second: Remember your first fish? Doesn't matter where you were, what you caught or how you caught it, even though chances are good that you can recount those details with unerring precision. Like a first love, everyone remembers his first fish. Think back 10, 20, 60 years... how it tapped your line and then gave a stronger tug? You tugged back. And cranked that reel so fast it's a wonder the handle didn't fall off.

Then the fish was at hand, touched only gingerly at first. The flush of success likely edged with a little fear: Is it slimy

or stinky or prickly or just plain gross? Didn't take long, though, until curiosity took over. You marveled at how the sunlight glinted off its wet scales.

Later in life you did learn to let go, to release your catch. Remember learning the thrill of playing a fish and the even greater joy of letting it go to fight another day? In a moment when you had absolute control of the destiny for another living, breathing creature, you chose to let it thrive. That day you captured something more precious—the realization it was OK to take with nothing more than a creel full of memories.

Of course, you still take the occasional fish. One in particular may have earned a place of honor on the wall. It could be a little worse for wear now, in need of some repair. It's a little faded with a few chips in the fin. But when you run your fingers along its thick back, you can recall the very lure you threw and the precise pitch screamed by the peeling line.

When were you permitted to take the old johnboat out by yourself, the aging outboard coughing to a start after repeated eager yanks on the starter? Funny how the familiar waters of that small mountain lake took on a whole new look when you piloted them solo.

To those outside the fishing and boating fraternity, these stories may seem remarkably similar. Those who partici-

pate know better. Each day on the water is different in its own individual and special way. Memories like these are as integral to our sport as the very acts of casting and retrieving.

In 1997, the Fish and Boat Commission will celebrate common memories, versions of which we all carry in our creels. Incorporating the Commonwealth's official theme, the Commission has adopted “Pennsylvania Fishing and Boating Memories Last a Lifetime” as its motto for the year. This theme will play a central role in our promotional efforts, including sports show displays, news releases, publications and a series of articles here in *Pennsylvania Angler & Boater*.

We hope that you will join us in celebrating these ideals. Enjoy our look back at fishing and boating in yesteryear. Take part by sharing your favorite fishing and boating memories with your fellow readers. Send your favorite memories for publication consideration to us as part of our contest. For details see page 61.

Most importantly, help create fishing and boating memories for a whole new generation: Take a young person fishing. Be a part of the magic moment when young eyes delight at the sight of the unforgettable first fish. You might see yourself in those eyes, a-fishing the stream of time.





Pennsylvania Fish & Boat Commission

PUBLICATIONS

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Coldwater Fishes of Pennsylvania		\$1.41 + .09*	\$
Warmwater Fishes of Pennsylvania		\$1.41 + .09*	\$
Migratory Fishes of Pennsylvania		\$1.41 + .09*	\$
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Panfishes of Pennsylvania		\$1.41 + .09*	\$
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Mail orders for above wall charts only. Add: \$2.00 (1-5 charts) \$3.00 (6 or more charts) \$			
Sub-total			\$

Books

	Qty.	Price	Total
Pennsylvania Amphibians & Reptiles		\$9.43 + .57*	\$
Weight-Length Estimator		\$2.83 + .17*	\$
Guide to Public Fishing Waters and Boating Access		\$2.83 + .17*	\$
Identification Guide to Pennsylvania Fishes		\$2.83 + .17*	\$
Fishing and Boating Self-Adhesive Yardstick		\$.94 + .06*	\$
Sub-total			\$

Pamphlets

By mail, total of first three are free. Thereafter include \$1.00 for each five ordered; can mix or match titles.

Qty.	Title	Qty.	Title
	Acid Precipitation		Limestone Streams
	Angler Award Program		Map Sources
	Bass, Muskie, Walleye Fishing		Marine Fire Extinguishers
	Delaware River in Pennsylvania		Personal Flotation Devices
	Drinking, Boating and the Law		Shad Restoration
	I Just Bought a Boat		Trout Fishing in Pennsylvania
	Ice Fishing in Pennsylvania		Wetlands
	Lakes in Pennsylvania		Zebra Mussels
Total Pamphlets			Sub-total \$

* PA residents include 6% sales tax.



PUBLICATIONS

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PLAY 1981		\$2.83 +.17*	\$
PLAY 1983		\$2.83 +.17*	\$
PLAY 1986		\$2.83 +.17*	\$
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PLAY 1992		\$2.83 +.17*	\$
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SMART

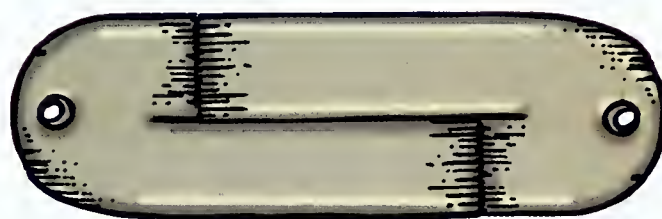
Angler's Notebook

by Carl Richardson
illustrated by Ted Walke

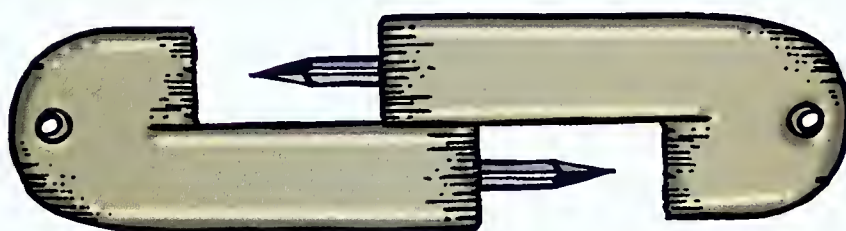
Ice Awls

DIRECTIONS

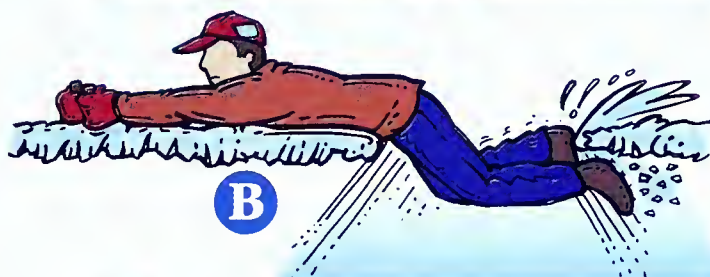
Trace the pattern on the wood and using the saw, cut out the two pieces. Note: If a coping or jig saw is unavailable, the awls can be made just by cutting the piece in half. Using the 3/16-inch bit, drill one hole at the end of each piece. On the end of each piece drill the following holes: One the same diameter as the nail, the other slightly smaller. The hole that is the same diameter serves as a "sheath" for the nail. The other is a pilot hole to prevent the wood from splitting. Make sure that the pilot hole on one side lines up with the sheath hole on the other piece. Drive the nail into the pilot hole on each piece leaving at least 1 1/2 inches of the nail exposed. Using the cutters or hacksaw, cut off the head of the nail. File or grind the head of the nail to a point. Put nylon line through the hole at the end of each piece. Knot the line so that it won't pass back through. Repeat on the other end. Assemble the two pieces and wear the awl around the neck when on the ice. 



Version A closed



Version A open



YOUR CHECKLIST

TOOLS NEEDED:

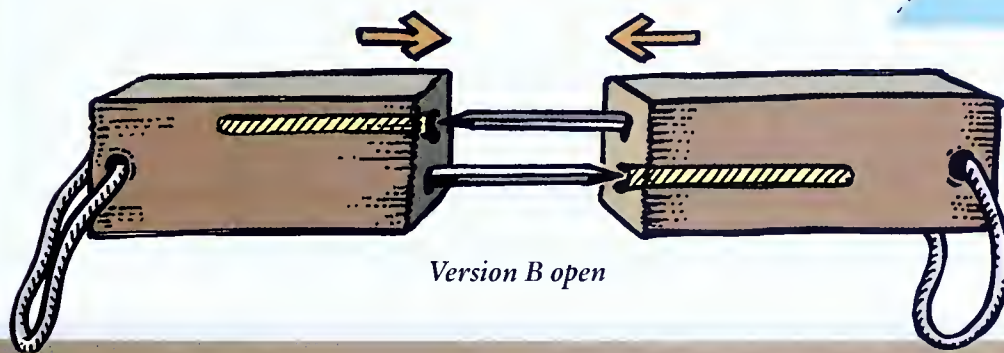
- ☐ Drill
- ☐ Hand coping saw, jig saw or scroll saw
- ☐ Drill bits:
 - ☐ 3/16-inch
 - ☐ same diameter as the nails
 - ☐ slightly smaller than nail diameter
- ☐ Hammer
- ☐ Hacksaw or bolt cutters for cutting nails
- ☐ File or grinder

MATERIALS:

- ☐ Any hardwood, dimensions: 2" x 2" x 8"
- ☐ Galvanized or masonry nails, 16 penny or larger
- ☐ 3/16-inch nylon rope, at least 24 inches long

TO USE THE AWLS

After falling in, the awls are used to pull yourself to safety. To do this, **A** firmly drive each spike into the ice and **B** pull yourself onto the ice. **C** Don't stand up once on the ice! Slowly roll to safer ice.



Version B open

A Parachute Light Cahill

by Walt Young



The parachute-style dry fly was invented by William Brush, an engineer from Detroit. Brush applied for a patent on his design in 1931. In subsequent years, patterns tied with the characteristic horizontally wrapped hackle were marketed under a variety of names, including Gyrofly, Umbrella, Ride-Rite, and probably a few others. Despite all those catchy names, parachute flies never gained widespread acceptance until relatively recently.

Parachute dry flies have enjoyed a tremendous surge of popularity in recent years for good reason—they work and they work well. A conventional dry fly depends on a heavy collar of hackle to float it, which can also obscure the body and wing to some degree. A parachute, on the other hand, presents a silhouette that more closely imitates a natural mayfly. It uses only a few wraps of hackle wound around the base of the wing. The hackle fibers radiate horizontally along the body to suspend the fly

on the water's surface in the same manner as a real insect's legs do.

Even though parachutes possess these obvious design advantages, many tiers perceive them as hard to tie and avoid attempting these wonderfully effective flies. This is an unfortunate misconception. Parachutes are different, not difficult.

There are two areas that seem to cause

Dressing: Light Cahill

Hook: Standard dry fly hook, sizes 12 to 18.

Thread: Cream or pale yellow.

Wing: Gold, white or fluorescent-yellow Antron yarn.

Tail: Light-ginger hackle fibers.

Body: Cream or pale-yellow dubbing.

Hackle: Light ginger.

the most trouble when tying parachutes. The first is the wing. Tying the wing correctly is vital on a parachute fly because it also functions as the post on which the hackle is wound. Stiff, fine-textured hair, such as calf tail and calf body, has traditionally been used for the wing material on parachutes. Getting this hair to behave properly gives some tiers difficulty.

A few years ago I began experimenting with alternative materials for parachute wings. Several of those I tried proved satisfactory, but the one I settled on is Antron yarn, for a number of reasons. Antron yarn is inexpensive and readily available. Most important, it is quick and easy to work with and produces a wing that is functional and durable.

Antron yarn is also available in a wide range of colors, giving the tier some options when fashioning parachute flies. For those desiring the most precise imitation, the wing color can be matched to that of the copied insect. If maximum visibility on the water is a concern, white or a fluorescent-yellow or green will produce a fly that is easily seen even in deep shadows or twilight.

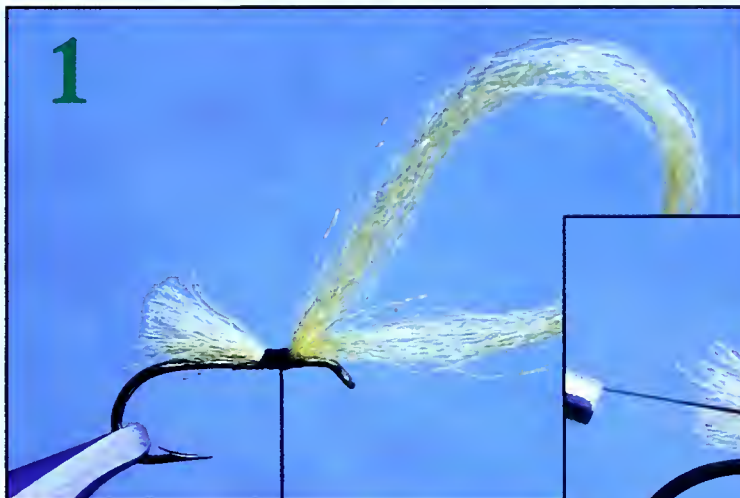
I have become a fan of high-visibility wings and now use them almost exclusively. My experience has shown me that under most conditions the fish seem to take parachute flies with fluorescent wings just as well as those with a more natural-colored wing. In some situations, fluorescent-winged flies can prove to be more effective. Because they are easier to track on the water, it is easier to detect drag and other flaws in presentation and make necessary corrections. Being able to see the fly for a few extra minutes during the fading light of a late-evening feeding spree can mean hooking another fish or two long after other anglers have headed back to their cars. Larger trout often begin rising only as darkness sets in, so those extra minutes of fishing time account for some of my best dry-fly fish each season. This alone has earned fluorescent-winged parachutes a permanent place in my fly box.

Winding the hackle on a parachute fly is the other tying step that some tiers find troublesome. Attention to a few simple details helps ensure the desired effect. For best results, the hackle should be tied in perfectly flat with the outer or "shiny"

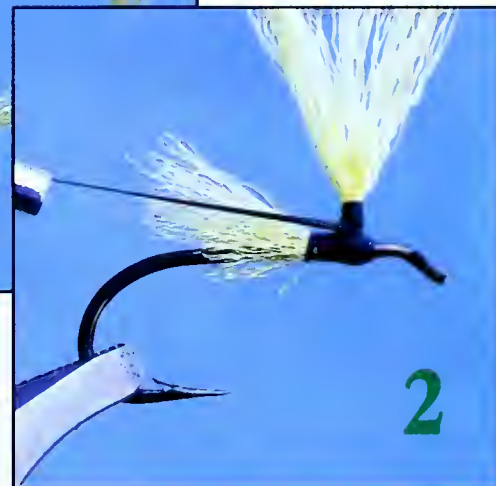
side of the feather facing up. The hackle stem should be bound down securely to prevent the hackle from twisting when wound and causing the hackle fibers to splay upward instead of radiating neatly around the base of the wing.

The first turn of hackle is another key detail. Maintain reasonable tension on the feather so the stem is wound tightly around the wing post. Then take care to make sure each successive wrap goes under the one before it. There is also no need to over-hackle a parachute. Three or four turns of hackle are usually sufficient. More than this often jams many hackle fibers upward, resulting in a fly that looks bad and floats poorly.

With a little practice, any competent fly tier can master the techniques necessary to tie a good-looking and effective parachute dry fly. And any favorite dry fly pattern can be converted to the parachute style. □



1. Cut a length of Antron yarn and fold it in half. Tie in the doubled yarn at a point approximately one-quarter the length of the hook shank behind the eye. The wing material should form a large loop as shown. Black thread is used in Steps 1 & 2 for better contrast.



2. Pull the wing material into the upright position and secure it in place with a series of tight thread wraps against the front side of the wing. Once the wing is positioned, make a series of thread wraps around the bottom of the wing itself to form a base where the hackle will be wound.



3. Trim away the butts of the wing material and advance the thread to the bend of the hook. Tie in a small bunch of hackle fibers for the tail, and then form a dubbed body up to the rear side of the wing.



4. Tie in the hackle at the base of the wing. The hackle should be tied in flat with the outside of the feather facing straight up. After the hackle is secured, finish the body by adding a little more dubbing in front of the wing. Be sure to leave enough room behind the eye to tie off the hackle and finish the head.



5. Wrap three or four turns of hackle around the base of the wing, making sure each turn goes below the previous one. Properly done, the hackle fiber should radiate evenly at a right angle to the wing. Maintain tension on the hackle and tie it off behind the hook eye, taking care not to bind down too many hackle fibers in the process. Trim away the excess hackle tip and finish the head.



6. Apply a drop of head cement at the base of the wing to seal the wraps of hackle in place. Complete the fly by trimming the wing to the proper length.



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Mugs can hold cold or hot liquids, including 12-ounce cans. The bottom can be removed to fill the sides with ice.

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1997 Rainbow Darter Patch

In 1997 the Commission begins producing an annual series of five non-game species limited-edition patches, designed by the Commission's graphic designer Ted Walke. Only 7,500 patches of each annual edition will be produced. This year's patch features the rainbow darter. For more details on Pennsylvania darters, see the article on page 33. Patches will be available after January 1, 1997. Each sells for \$4.71 plus 29 cents PA state sales tax for a total of \$5.00. Include \$3.00 shipping and handling for each order. Contact: Fulfillment Section, PA Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.



The mission of the Pennsylvania Fish & Boat Commission is to provide fishing and boating opportunities through the protection and management of aquatic resources.

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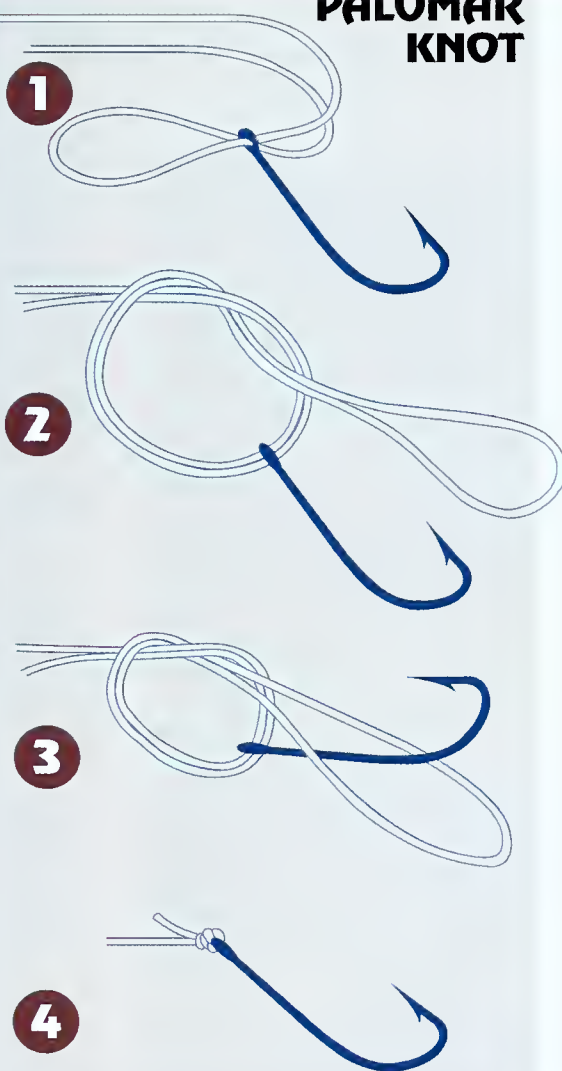
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Angler's Notebook by Seth Cassell

PALOMAR KNOT



A Palomar knot is outstanding for tying hooks, lures and sinkers to the line. It's easy to tie, and it's very strong. 1) Double the line through the hook eye. 2) Tie an overhand knot in the doubled line. 3) Move the hook through the end loop. 4) Tighten the knot by pulling both line ends and clip the tag end.

An old trick ice fishermen use to attract fish to their baits is dropping crushed egg shells down the auger hole. The light reflecting off the shells may attract the fish, or perhaps the fluttering shell chips simply spark their investigative urge. Whatever the reason, give it try the next time the fishing is slow. But remember that a little goes a long way.

Old creek channels in impoundments are excellent places to ice-fish. This basic structure attracts a wide variety of large gamefish, as well as bluegills, crappies and perch.


For hauling a lot of ice-fishing gear a long distance, nothing beats a plastic snow sled. They're cheap, light weight, and will carry buckets, tip-ups, jigging rods and the rest of your gear to your spot in one trip.

When fishing during the wintertime, always be sure your tackle is rigged before you go to the fishing location. It is difficult to tie on sinkers, lures, hooks, etc., when your hands are cold.

Many ice fishermen report that after drilling a hole, they get strikes immediately. Although the angler may have picked an excellent location, the instant success may also be explained by the idea that nearby fish are attracted to the area by the sound of the drilling auger, or by the sudden influx of sunlight into their dark world beneath.

Five-gallon buckets are terrific for storing ice-fishing gear. In them will fit small tackle boxes, tip ups, a thermos and other gear. If you cut a hole in the top, you can keep several jigging rods in the bucket as well. Once you get to your spot and empty your gear, you can use the bucket as a seat.

illustration-Ted Walke



Cast & Caught



Nicholas Bohonek, Pittsburgh, caught this steelhead in Elk Creek last October. The fish was caught on an egg sack and weighed 7 1/2 pounds. It was 26 1/2 inches long.



Denise Harding, Scranton, holds up the largemouth bass she hooked while fishing at a lake in Wayne County. The fish weighed 6 pounds and measured 22 inches in length.



Wayne Jaillet, Mercer, hooked this brown trout while fishing in Neshannock Creek, Mercer County. The fish measured 23 inches and was caught on live bait.



Matt Kilianny, Scottdale, used a crankbait to fool this walleye into striking. The Lake Erie fish weighed 7 pounds, 6 ounces and measured 26 3/4 inches in length.



Bob Elliott (left) caught this nice brown trout last May while fishing in French Creek, Chester County. He and his fishing partner, Damian Dieuliis, are active volunteers with the Commission's stocking program.



Jim Suttie caught and released this largemouth bass while fishing on Pine Lake, Monroe County. The fish, which took a minnow, weighed 7 1/2 pounds. Nice going, Jim!



Justin Edgar, Pittsburgh, used a jig and minnow to fool this husky rock bass. The Lake Erie fish weighed 14 ounces and was 10 inches long.



Michael Evans, Leechburg, caught this brown trout while fishing in Brokenstraw Creek, Warren County. The fish, caught on a spinner, weighed 4 pounds, 12 ounces and was 23 inches long.

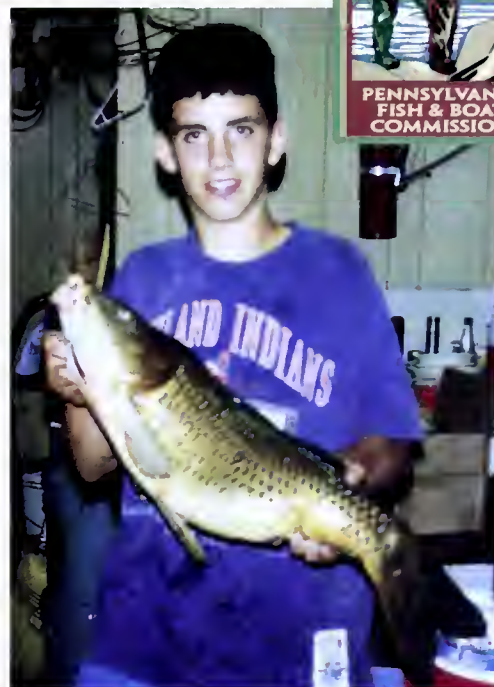
Memories To Last A Lifetime



Douglas Pavick was fishing on Glendale Lake when this muskellunge nailed his spinner. The monster fish weighed 35 pounds and was 50 inches long.



Eight-year-old Jenna Butts, Carnegie, was fishing on the Ohio River near Pittsburgh when she hooked this 18 1/2-inch sheephead. Nice job, Jenna!



This 29 1/4-inch carp was enough to earn Billy Roach, Abington, a Junior Angler Award. Billy was fishing mealworms on Green Lane Reservoir, Montgomery County, when he caught the 14-pound, 4-ounce fish. Nice job, Billy!



John Stoops, 13, caught this 33-inch carp on the Allegheny River last March. The fish took a nightcrawler and weighed 15 pounds. John landed the fish on 6-pound-test line. Nice fish, John!



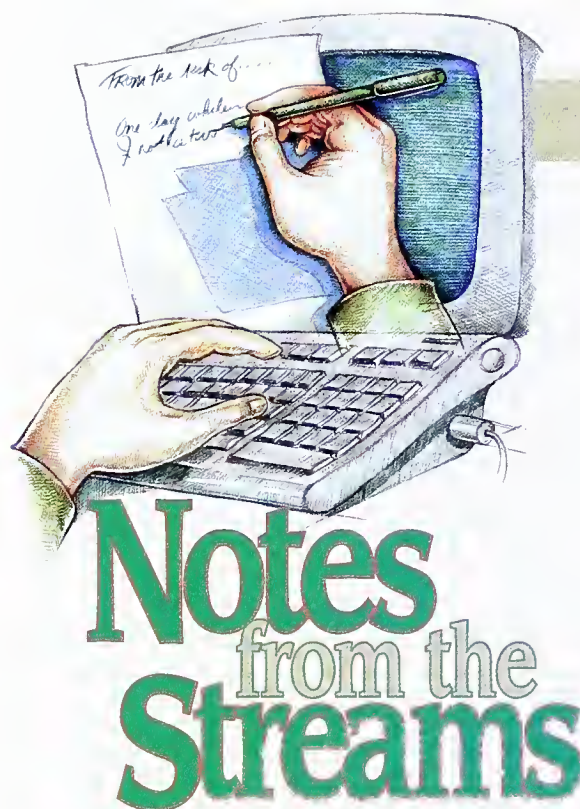
Kingston resident Charles Mountjoy caught this brook trout while fishing on Moon Lake the opening day of last season. The fish measured 19 inches in length and weighed 4 pounds, 8 ounces.



Pittsburgh resident John Wytiaz was fishing in Elk Creek, Erie County, when this steelhead struck his lure. The fish measured 30 inches long and weighed 10 pounds, 6 ounces.



Debbie Berkich holds the 38-inch channel catfish she caught last August in Lake Arthur. Nice fish, Debbie!



Botany lesson

While patrolling the Allegheny River, Venango County, I encountered this interesting scenario. Walking the old rail grade, I was spotted by two young men sitting at the wood's edge. One of the men quickly stood up and disappeared into the woods. When I reached their location I noticed an ever-growing circle of beverage cans around the spot where they were sitting. Thinking back to the man who slipped into the woods, I recalled two primary features: He was shirtless and he left carrying a can. Figuring this was a good opportunity to educate him on the negatives of littering and still curious at the one individual's skittish behavior, the remaining gentleman, a very pleasant young man, and I began looking for his departed friend.

When we found him, he had run along the river hill. Finally, with both of them in front of me, I asked my racer why he ran when he saw me, not wanted or having committed any violation of a law to the point when I first saw him. His only response was, "I don't know." Now, looking at the hill we had just gotten our shirtless runner from and at the path underneath my feet, I re-evaluated and figured, perhaps, first a botany lesson may be in order.

"Know what poison ivy looks like?" I asked. Their reply, "Nope!" "Well, do you see that plant there with the groups of three odd-shaped leaves? That's poison ivy," I said. At this point the one gentleman who helped me locate his

friend added, "Huh—that's a really good thing to know, isn't it?" Looking now to my runner, I asked, "Recognize that from anywhere?" It was at this point he realized that the hill he had just run across and rolled through, unshirted, was literally engulfed with the ivy. His next words said it all: "Man, I don't know why I did that. That was a really stupid thing to do."

"Allergic to it?" I asked. "Don't know," he said. "Oh, you'll soon enough," I added. "By the way, where is that can you were holding when I first saw you?" I asked. "Uh-oh," was all he said.

I guess there's two valuable lessons I've gathered from this situation—if you haven't done anything, don't run, and pay attention in that high school biology class—someday it may pay off.—WCO Mark Kerr, Northwest Region.

Just call it superstition

I'm not a superstitious person by nature...but lately, I consider an omen an omen.

For the past 20 years or so when I work with neighboring officer Fred Mussel of Lehigh County something unusual always occurs. Such as the patrol boat doing everything from not starting, sinking or floating away on us to Fred rolling his fingers up in the patrol vehicle's window or slamming them in the trunk, getting confused with log rolling and rock rolling and sinking out of sight, driving down the road with a parachute behind his vehicle (actually a swimming pool cover that looked like a parachute).

All these things are just a small sample of what I have witnessed, making working with Fred very interesting. I could tell you more, but I don't want his wife to get too hysterical.

But back to the omen. I finally exercised better judgment the other day, returning to my office instead of working with Fred—after a squirrel fell out of a tree and on top of my head.

PS: If there is a rebuttal to this Stream Note, don't believe a word Fred tells you. After all, our supervisor won't allow him to operate a jet ski.—WCO Terry Hannold, Northampton County.

The long road

As part of my field training assignment in Lehigh County with WCO Fred Mussel, I was required to give a presentation on the selection and training of water-

ways conservation officer cadets at two sportsmen's club meetings. At first I failed to see the wisdom of this exercise. But while I was actually preparing the presentation, it dawned on me just how long and involved the process of becoming a waterways conservation officer was. We began the testing process in late 1994 and now it was April 1996 and we were still in training. Equally amazed were our audiences to learn that our basic training was longer and more thorough than any other Pennsylvania law enforcement agency. They were also intrigued that we were trained at an accredited municipal police officers' academy in addition to and before an even longer educational process at our Fish and Boat Commission academy. The ensuing positive comments from these sportsmen were indicative of their pleasure in knowing that their conservation officers would be able to serve their needs so completely after they graduated and received their duty assignments.—WCO George Geisler, northern York County.

Hey officer, I'm lost

One day during field training in Luzerne County, WCO Dave Corl and I were driving on a rural back road miles from the nearest house. As we turned a corner, we came across a homely, wrinkled dog standing on a piece of paper that had apparently fallen off a nearby telephone pole. We stopped to investigate and the dog backed away enough for me to read the "wanted poster" under its feet. It read: "Lost male St. Bernard/Shar-pei mix that answers to the name of Charlie." I called out "Charlie" and the overgrown pup happily jumped into the jeep for the ride home. Apparently, Charlie could read but didn't know where he was.—WCO Tom Nunamacher, Northcentral Region.

Oops!

While on routine patrol at Twin Lakes Park, I struck up a conversation with a young couple who were teaching their children to fish. Suddenly, the mother heaved back and cast her son's entire rod in the lake. Before I could say a word, the mother flipped off her shoes and jumped in to retrieve the rod. She hurried out with the rod and apologized for illegally wading in a state park lake.—WCO Ron Evancho, Southwest Region.

Memories To Last A Lifetime



Watch your step

While on field training in Venango County with WCO Robert Steiner, I had the opportunity to be part of a feature article in the local newspaper. The subject of the article was the opening day of trout season from the perspective of a WCO. Later that same day we were stocking West Pithole Creek when a photographer from the newspaper showed up to "make us famous." WCO Steiner jokingly warned me not to fall in the creek in front of the camera. While I stood on the bank holding a bucket of trout, the photographer made his way out onto some rocks...and promptly fell in. WCO Steiner later congratulated me on being the first cadet he'd ever seen make a photographer get wet. -WCO Robert Croll, Southeast Region.

OK, I'll let you off this time

While patrolling the Susquehanna River, I noticed a squirrel sitting on the edge of a garbage container at a river access. The squirrel jumped into the barrel and emerged with a fast food container. The squirrel climbed a tree and investigated the container. After he found what he was looking for, he dropped the container, which fell to the ground. Because I couldn't get a good name and address on this violator, I decided to give him a warning. -WCO James Stout, northern Luzerne County.

Oh, really?

While fishing undercover at a northeast rod and gun club lake, we had a marked patrol car and two uniformed officers do a walk-through. They checked everyone, including me. The fellow to my right, who they later cited for catching more than the legal limit, piped up when they left, "Those guys think they are so tricky, but I can smell them a mile away." I had to concentrate to keep from smiling as I thought to myself that his nose was not working very well that day. Later, when the other officers had finished citing him based on the information I had given them after leaving the lake, he said to them, "You guys should have been here 15 minutes ago. The guy to my left caught so many trout that he had to keep going to the truck to put them in because there wasn't enough room on his stringer." -WCO Thomas E. Benevento, southern Chester County.

The children are our future

I believe our youth need all the help they can get in today's world. They are bombarded with nothing but doom, gloom and despair. I ordered a supply of PLAY applications and outdated newsletters from the Bureau of Boating and Education. While on routine patrol, I will stop and hand this information to families fishing with their children. I feel fishing will provide a lifelong pastime for the children. In addition, when the children realize fish need clean water to live, my hopes are they too will take up the fight for clean water. -WCO James Stout, northern Luzerne County.

First pollution reminder

While in training in Centre County with WCO Brian Burger, I encountered my first pollution. Officer Burger let me investigate and collect evidence. Near the end of the investigation, Officer Burger asked if I was done. I quickly went over the long mental list of things that needed to be done and answered confidently, "Yes." Then he asked, "Did you see the fish kill?" My stomach dropped, not believing I missed something as obvious as dead fish and I admitted that I hadn't seen any dead fish. Officer Burger then produced what I expected to be a dead trout or bass. Instead, he had an evil grin and a plastic bathtub fish. The "salmonid plasticus" is now safe in my evidence locker as a reminder of my first pollution. -WCO William Crisp, Southeast Region.

Timber!

During field training in Schuylkill County this past spring I had the arduous pleasure of stocking trout with WCO Gary Slutter. We had just finished hauling the first of many buckets of brookies several miles back on a steep, rugged gamelands trail. We were hot and sweaty from the labor, but had smiles on our faces knowing that these fish were well scattered and would be a challenge for anglers. The grins lasted for the two minutes it took us to get the jeep turned around for the bumpy ride back to the road. There in front of us on the only trail out was a 100-foot white pine that chose that particular moment in its century of life to fall down. It took nearly two hours to cut our way out. -WCO Tom Nunamacher, Northcentral Region.

"Fishing and Boating Memories Last a Lifetime" Contest

Readers are invited to write their fishing and boating memories and submit them to the Commission. Submit your article to: Fishing and Boating Memories Last a Lifetime, Pennsylvania Fish and Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000. Include your name, address, phone number and age. You are encouraged to submit photographs with your article.

The Commission will divide the submissions into youth (articles submitted by persons 17 or younger) and adult (articles submitted by persons 18 or older) categories. The Commission will review all articles and select at least two in each category as prize winners. The top prize in each category will be a framed, signed and numbered print of the 1997 Trout/Salmon Stamp painting, as well as limited-edition patches from 1996 (Harveys Creek) and 1997 (Neshannock Creek). The second place winners will receive the 1996 and 1997 limited-edition patches. In addition to the prize winners, the Commission may select up to four articles as "Honorable Mention" winners.

The prize-winning submissions and the honorable mention winners may be published in upcoming editions of *Pennsylvania Angler and Boater* magazine. Entries selected for publication may be edited to meet publication requirements.

Entries will be judged for originality, suitability for publication and relationship to the "Fishing and Boating Memories Last a Lifetime" theme. Each person may submit no more than two entries. Entries must not have been published previously, and they will become the property of the Pennsylvania Fish and Boat Commission. Photos will be returned if they are accompanied by a self-addressed, stamped envelope. The deadline is July 15, 1997.

Maps



Useful to Pennsylvania Anglers



Photo: Art Michaels

Delaware River near Easton.

The Pennsylvania Fish and Boat Commission does not sell these maps. For ordering and other information, contact the company or agency directly.

County Maps

Type 3, or the larger multi-colored Type 10 **County General Highway Maps**, show all public roads including state, township and forest roads. Lakes, rivers and streams in the counties are also shown. Contact PA Department of Transportation, Publications Sales Store, P.O. Box 2028, Harrisburg, PA 17105. Telephone 717-787-6746.

Pennsylvania: County Maps and Recreational Guide provides a handy guide book for the traveler and sportsman. The easy-to-use reference guide contains maps of each county showing roads, parks and wilderness areas. Available from: County Maps, Puetz Place, Lyndon Station, WI 53944. Telephone 608-666-3331.

Five-color, full-topographic county and county region maps are also available from: Modern Explorer Products, P.O. Box 588, Hopwood, PA 15445. Telephone 412-438-7686.

Topographic Maps

Topographic maps are published and sold by the U.S. Geological Survey. An index showing the topographic maps for each quadrant of the state is free. The index includes the area covered by each quadrangle map, its name, scale and year of survey. Addresses of local map dealers and federal map distribution centers are also provided. Contact: Map Distribution Center, U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80225. Telephone 303-236-7477.

In Washington, D.C., over-the-counter sales (no mail orders) are available from: U.S. Geological Survey, Main Interior Building, 1849 NW "E" Street. Hours 8:00 a.m. to 4:00 p.m. Telephone 202-208-4047.

The **Pennsylvania Atlas and Gazetteer** is a comprehensive guide with to-

pographic maps that list roads, mountains with elevation contours, forest areas, marshes, waterways, boat ramps and dams. Contact: DeLorme Mapping Co., P.O. Box 298, Freeport, ME 04032. Telephone 207-865-4171.

Waterproof **Rough Country Topos** are available for all field-use scale topographic quadrangle map areas in Pennsylvania. Raised relief maps and regional topographic maps can also be purchased from: Modern Explorer Products, P.O. Box 588, Hopwood, PA 15445. Telephone 412-438-7686.

Grizzly's Go'n Fish'n has many different kinds of maps. Contact the company at RR 2, Box 513, Hawley, PA 18428-9637. Telephone 800-462-1943; 717 266-9807.

The U.S. Forest Service publishes a map of the **Allegheny National Forest**, detailing all the forest service roads, as well as the locations of the region's trout waters. The map costs \$3.00 plus tax. Contact: U.S. Forest Service, 222 Liberty Street, Warren, PA 16365, or call 814-723-5150.

Lake Structure (Hydrographic) Maps

These maps show "structure" (depths, bottom contours, dropoffs, etc.) and are available for several lakes.

International Map Co., 547 Shaler Boulevard, Ridgefield, NJ 07657. Telephone 201-943-6566 or 943-5550.

Northwoods Publications, Inc., 430 N. Front Street, Wormleysburg, PA 17043. Telephone 717-761-1400.

Modern Explorer Products, P.O. Box 588, Hopwood, PA 15445. Telephone 412-438-7686.

River, Stream Maps

The Delaware River and Outdoor Recreation. Series of 10 maps of the Delaware River. Waterproof maps showing physical characteristics and recreational facilities of the river from Hancock, NY to Trenton, NJ. Contact: Delaware River Basin Commission, Box

7360, West Trenton, NJ 08628. Telephone 609-883-9500.

Howard William Higbee's Stream Map of PA (includes a free location guide). Shows 45,000 miles of Pennsylvania waterways, including the locations of 900 trout streams and 300 lakes, dams, reservoirs and ponds. Identifies "Class A" limestone streams, bass waters and trophy fish waters. Contact: Vivid Publishing Co., 347 Rural Avenue, Williamsport, PA 17701. Telephone 717-322-1167.

Schuylkill River Users Guide. Series of eight waterproof maps. Identifies public access sites, stream flow characteristics and dams and pools, from Port Clinton to Fairmount Dam. Obtain from the State Book Store, 1825 Stanley Drive, Harrisburg, PA 17103. Telephone 717-787-5109.

Susquehanna Water Trails. Detailed canoeing map of the Susquehanna River through the Endless Mountains of northeast Pennsylvania. The map shows towns, highways, access areas, camping areas and major islands. Endless Mountains Tourist Bureau, RR 6, Box 132A, Tunkhannock, PA 18657-9232. Telephone 717-836-5431 or 1-800-769-8999.

Fish Man Guide Services, 118 Shippen Drive, Coraopolis, PA 15108. Telephone 412-269-1285.

Navigation/Nautical Charts

Allegheny, Monongahela and Ohio Rivers Navigation Charts are available for the Allegheny River (mile 0-72), Monongahela River (mile 0-128.7) and Ohio River (mile 0-127.2). Contact: U.S. Army Corps of Engineers, 1000 Liberty Avenue, Pittsburgh, PA 15222. Telephone 412-644-6872.

Nautical Charts of Lake Erie and the Delaware River are available from Distribution Branch (N/CG33), National Ocean Service, Riverdale, MD 20737. Telephone 301-436-6990. Lake Erie charts are in Nautical Chart Catalog 4; Delaware River charts, Catalog 1. ☐

Mouth Right by Jim Mize



Awhile back, I was fishing a lake for trout. My partner and I were between strikes and the warmth of the sun, the gentle rocking, and the hum of the electric motor lulled us both. Hoping to soak up some wisdom before my nap, I asked him, "What's the secret to catching trout?"

His answer surprised me a little, though it shouldn't have because I have heard it before from fishermen and others who live with a rod in one hand. Yet, as fishing secrets go, it may be the most overlooked and underemphasized secret around. It's confidence.

"The trick," explained my partner, "is to be fishing with something you believe in."

Dad called it, "holding your mouth right." As soon as my toddling fell in rhythm with the sway of the boat, Dad gave me a fishing rod to steady myself with. His philosophy on fishing was that when we had the chance, we should go. Not rain, nor sleet, nor dark of night kept us from our appointed rounds. It's a wonder I didn't grow up to be a mailman.

Ice could freeze on my rod, wind could chap my cheeks, and rain could prune my fingers, but I hung in there.

By the age of six, I was a weathered, gristly old coot with calluses on his casting hand. Clint Eastwood, John Wayne and I would have made a good threesome. Keeping to my self-image, I used only tough, ugly plugs. Devil Horses. Splutterbugs. Mad Dogs. I was a hard case.

But just the same, I'd occasionally daydream and look for new ways to kill time. Some days, I'd hold fish races around the minnow bucket. Other times I'd rummage through the tackle box, seeing if there were any old, ugly plugs I'd forgotten about. Another of my favorites was to take lures apart and reassemble them in different combinations, swapping spinners, hula skirts, and anything else that would come loose. At such times, Dad would catch fish and I wouldn't. "How come you're catching fish and I'm not?" I would ask. His reply was always "Maybe you're not holding your mouth right."

Different mouth positions never seemed to help, and believe me, I tried them all. Puckering had no effect whatsoever, and besides, it was too prissy for such a tough character. I tried keeping my mouth wide open, but stayed in constant fear of swallowing bugs. I even fished with my mouth tightly shut. Dad especially liked this one. But it didn't help me catch fish.

It took awhile before I realized that what he had and I didn't was confidence.

Your senses leave you when you lack confidence. One of the first to go is your attention span. You daydream and take your eyes off your line. The light strikes that can't be felt are missed. A fish can pick up a sinking lure and spit it out without a twitch of the rod tip quicker than Jack Benny can sidestep a restaurant check. The slacker will never notice.

Eyes that wander elsewhere miss fish activity. The swirl near the bank made by an easy feeder should have marked your next cast.

The next to go is your casting. The best brushpiles are not the ones up in the woods. Just as bad, you may start slinging lures that land five feet from the bank. When fishing is tough, it's often because they're hanging close to cover. So if you're not casting accurately, a belief that fishing is slow will become a self-fulfilling prophecy. The fishing may not be bad, but if you believe it is, it will be.

After confidence deteriorates further, you start changing lures more often. You sort through your tackle box for ideas, giving each a one or two minute trial and spending 15 minutes in between pondering.

Breaks for coffee or Cokes become more frequent. If you're gaining a lot of weight while fishing, it's a bad sign. Unless you're handy with your feet, you're probably not fishing while you're eating. And a lure that's not in the water won't catch fish. It's as simple as that.

A lack of confidence can finally lead to just hanging it up and going home. You quit. Often you'll have fished through the slow part of the day only to quit an hour before dark, a time when fish usually feed.

On gray, wintry days, I remember we would pace ourselves, agreeing to troll past one more rocky point before quitting, and often as not, that point produced the only trout for a day's effort. Dad would then suggest we try one more point, then one more, and finally one more before heading back at dark.

So if you want to catch more fish, use lures you believe in. When you try a new one, try it because you think it's going to work.

When the fish get lockjaw, remember that every fish has to eat something and they could start anytime now. And when they start, you just might catch one. You have before and will again.

If you expect to catch fish, you'll do things a little differently, and you'll catch fish. The whole trick, as Dad says, is holding your mouth right.



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A Question of Limits



"It's not that simple." We hear that phrase a lot when talking about creel and size limits for trout, bass and other species. During the January meeting of the Fish and Boat Commission and the first meetings of the Wild Trout Workgroup and the Bass Workgroup, a good deal of the discussions focused on creel limits and size limits.

There are a number of suggestions for reducing the creel limit on trout from the current limit of 8 trout per day. There are also calls for reducing the bass creel limits (now 6 per day) at certain times of the year. Some are calling for cutting the 50-per-day limit on panfish to 25 panfish per day. And every time the subject of creel limits is discussed, someone observes that using creel limits to manage fish is "not that simple."

Our biologists tell us, and they have lots of evidence to back them up, that modest reductions in creel limits have no effects on fish populations or even on distribution of fish among anglers. As Del Graff, Director of our Bureau of Fisheries, observed, the fisheries management effects of reductions in creel limits are "counterintuitive." If you reduce the creel limit of bass from 6 per day to 4 per day, the impacts on bass populations and on the average number of bass taken by an angler in a typical day would be negligible. This is because a relatively small percentage of anglers catch their limits on a relatively small percentage of their fishing days.

But what about Angler X, who you saw with a stringer of 6 nice-sized bass last fall? If his limit were only 4, wouldn't there be 2 more fish for you to catch? It's not that simple. It's true that individual anglers do have great days on the water and creel their limits. But reducing the creel limit for Angler X doesn't mean that those extra fish will be caught by Angler Y. There are so many variables that go into determining the size of an individual angler's catch (skill, location, weather, water flow, gear, and so forth), that it's simply impossible to say what would have happened to those two fish.

As Dick Snyder, Chief of our Fisheries Management Division, puts it: "Equity in harvest is not possible with creel limits unless the limits are set very low. In fact, equity in harvest is usually not related to abundance of fish."

It's important to remember that we're talking about complex biological systems when we look at fish populations and the distribution of fish among anglers. Angler harvest is only one component of the total mortality of fish. Total mortality includes angler harvest mortality, hooking mortality on fish released, and natural mortality (predators, habitat changes, water conditions, and so on).

There are many, many studies that show that reducing creel limits has no substantial effects unless the reduction is drastic. For example, when the panfish creel limit on lakes subject to special conservation regulations was reduced from 50 per day to 10 per day, the average daily harvest of panfish on these lakes went from just over 11 panfish per day to just over 8 panfish per day. That's right, with a 50-panfish-per-day limit, the average daily harvest was about 11 panfish per day. This tells us that reducing the creel limit to 25 panfish per day would have no effect on most waters. And similar results can be expected with regard to changes in creel limits on bass and trout.

Does this mean that the Commission should stop considering adjustments to statewide creel limits? Well, it's not that simple. Even if reductions in daily creel limits have no effects on fish populations or the distribution of fish among individual anglers, the Commission needs to consider their effects on the human component in fisheries management. In providing fishing opportunities and managing fish-

eries, the Commission needs to address angler expectations and consider other factors that make creel limits useful tools. Furthermore, reduced creel limits during certain times of the year or on waters subject to special regulations may be a good fisheries management approach.

Creel limits shape angler expectations of how many fish it is desirable to harvest each day. Should anglers reasonably expect to catch 8 trout or 6 bass per day? And in some ways, the creel limit is a useful means to help us recognize the value of a specific species of fish. That's the main reason why the Commission imposed a 6-shad-per-day limit on the Delaware River system some years ago even though New Jersey imposed no limit.

If creel limits are relatively weak fisheries management tools in most situations, what about size limits? Here again, a great deal of research has been done, and it shows that size limits are much more powerful tools in addressing harvest mortality. So if you want to reduce harvest mortality, you simply increase size limits, right? Well, once again, it's not that simple. In wielding such a powerful tool, fisheries managers must take special care to ensure that changes are needed and don't cause undesirable effects such as overpopulation and changes in the components of the overall fisheries.

So how does the Commission go about the business of considering changes to limits? Our goal is to put the resource first in all such decisions. If facts show that we need to reduce harvest mortality in particular situations, then our fisheries biologists will not hesitate to recommend changes. Once the resource-based questions are answered, then it's appropriate to consider social or human factors such as angler expectations. In doing all this, the Commission will seek input from anglers from across the Commonwealth.

To facilitate discussion of this important subject, the Commission has formed two workgroups: The Wild Trout Workgroup, chaired by Commissioner Inky Moore, and the Bass Workgroup, chaired by Commissioner Don Anderson. The workgroups include representation from sportsmen's groups, interested anglers, Commission staff, representatives of other agencies, and members of the Commission. Both workgroups represent logical extensions of the Commission's philosophy of seeking input from, and building partnerships with, our customers, the anglers and boaters of Pennsylvania. We hope these workgroups can build on the success we had with a similarly structured workgroup on fishing tournaments that met last spring and that will reconvene this fall.

The staff expects to distill input provided and insights gained from the Wild Trout and Bass workgroups into reports and recommendations to the Commissioners at the July 1997 Commission meeting. If the Commissioners decide to propose changes to current statewide or special fishing regulations, we will provide additional opportunities for public input. Right now, we're looking at some possible changes for 1999 fishing regulations. It takes a long time to give full and fair consideration to changes to regulations on creel and size limits because "it's not that simple."

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STOP THE PRESSES!

We hope you agree that we have a good reason for printing this issue a little late. The Commission was able to produce the 1997 Inseason Trout Stocking Schedule earlier than anticipated. We had originally planned to print it in the May/June issue. However, our aim is to bring you this information as soon as possible, so we decided to place it in the March/April issue, even though that would require us to print the issue a little late.

This issue's front cover shows (from left) WCO Brian Burger, volunteer Frank Zelesnick (orange coat), Fisheries Technician Bob Weber and volunteer David W. Chamberlin stocking trout at Poe Valley Lake, Poe Valley State Park, Centre County. PA&B Editor Art Michaels took the picture.





Live baiting for muskies

Mike Bleech's article "Live Baiting for Muskies" in the September 1996 *Angler* does a fine job describing fish position in different types of streams. However, I am dismayed that your magazine promotes the use of live bait for a fish that is: 1) a joy to fish for, catch and release, 2) rare in our waters, 3) very expensive to rear, 4) hard to release safely because of its size, teeth and thrashing, 5) of relatively low food value except in the rare larger sizes, and 6) sometimes high in harmful chemicals because of its age and top position in the aquatic food chain.

As you may agree, a released fish with a hook in its gullet has little chance of survival, while superficial wounds from artificial lures rarely have lasting consequences. Almost no one carries the special tool required for removing a hook deep in a musky's throat. And they don't hold still unless they are far gone.

Dedicated musky anglers agree that bait is not nearly as effective as artificials for a variety of reasons, so there seems to be no excuse to use bait. It is interesting to note that along with the musky in the article's lead photograph, a plug is caught in the net webbing. I propose that Pennsylvania ban or at least discourage bait use for muskellunge. —William Keane, Pittsburgh, PA.

The Commission maintains a musky management program that is aimed primarily at producing a trophy fishery. The presence of muskies in a lake or river and the potential of hooking and perhaps landing one adds a level of excitement to the angling experiences of many Pennsylvania anglers. Muskies are often misunderstood to be vicious predators that have

been blamed for consuming gamefish. The truth is that they are a top predator once they reach a size that eliminates them as prey, and they feed relatively infrequently and usually on non-gamefish species. Of course, as a musky angler, you already know this to be true.

Because not all persons who catch a musky are dedicated musky specialists, many "first" muskies are likely caught accidentally and/or with the use of live bait. Often anglers start out in the sport by catching species such as bluegills or stocked trout on live bait. Usually after some confidence is gained, the angler "graduates" to more difficult species or the use of artificial lures or flies. Still, some anglers prefer to remain live-bait enthusiasts. There is nothing wrong with that! Angling is all about enjoyment, relaxation and quite frankly, catching fish. Provided that people follow the regulations such as seasons and size limits, which are designed to ensure protection of the resource, anglers should be allowed to choose their own methods of pursuing their intended quarries.

Live bait is a legal method for catching muskies. Depending on the time of year and attitude of the fish, it can be more or less effective than artificial lures. I don't believe that anyone can say that live bait definitely is more damaging than artificial lures when catching and releasing muskies. In fact, some types of artificial lures may be more damaging than live bait. For example, multiple-hook plugs and large bucktail or living-rubber jigs are often taken deeply and can become entangled in gill arches and eyes.

Hooking and handling studies are difficult to design and carry out no matter which species of fish you are studying. That's because it is difficult to duplicate scientifically all the environmental conditions that a fish faces after it has been released. Often, for species such as muskies and northern pike that fight hard and tend to thrash when being handled, the netting, unhooking, handling and photo shoots may be more damaging than the actual hooking injuries. Unfortunately, I cannot direct you to any scientifically conducted hooking injury/mortality studies performed scientifically on muskies either in PA or elsewhere.

Lacking scientifically collected data, I suggest that the skill of the angler in properly hooking, landing and handling,

instead of the lure or bait chosen, is the critical factor in successful releases.

Fortunately, Mr. Bleech's article contains two important points that should not be overlooked. First, Mr. Bleech warns that by letting a musky swallow the hook, you risk fatally damaging the fish. Also, he acknowledges that most serious musky anglers practice catch and release to preserve their fishing. Second, he describes "quick-strike" rigging. This method was detailed in the *In-Fisherman* magazine several years ago as an effective yet less damaging method of live-baiting. An angler strikes almost immediately on feeling the "take." The result is more lip-hooked fish. Developed by dedicated musky and pike anglers, this method is an attempt to combine the fish-attracting abilities to live bait with the improved ability to release fish inherent in some lures. An innovation like this lets anglers use live bait and successfully release large muskies.

Because true musky specialists are few in number, current musky anglers should look to add new "converts" to their ranks. Articles such as Mr. Bleech's are designed to introduce people to musky fishing and encourage their participation. If the use of live bait methods produces "the fish of 10,000 casts" for a neophyte angler before that angler quits and takes up golf, then a new advocate of musky fishing and resource protection has been created. In these days of shrinking budgets and natural resource agencies spread ever thinner, the devotees of specialty fisheries such as musky angling should be looking to encourage fellow anglers to participate as much as possible.

Let's face it. Because of natural limitations, without an active musky stocking program in Pennsylvania, angling over naturally reproducing populations would be restricted only to a few waters in north-west Pennsylvania. Perhaps the worst thing that musky anglers could do for their sport is further elevate it to an elitist level. It is probable that an Artificial-Lures-Only regulation for muskies would do just that. I also have met a number of dedicated musky anglers through the years who insist on live bait as the way to go for dependable musky fishing. If a move to Artificial Lures Only discouraged these individuals from participating, the sport as a whole would probably suffer.

I hope that I have addressed your con-

Memories To Last A Lifetime



cerns regarding the use of live bait for muskies. In many cases, care in handling is probably more critical than the method of capture. Nonetheless, it is refreshing to hear from a dedicated musky angler whose heart is no doubt in the right place. While we may differ in opinion, I ask that you ponder my remarks and consider the issue of live bait use for muskies in its proper perspective.—*Richard A. Snyder, Chief, Division of Fisheries Management.*

Remembering 1928

The year was 1928 and I was 17 years old; I know that was the year because the Graf Zeppelin was to fly over Portage and Blue Knob. People thought my cousin and I were crazy for going fishing when we knew this great event was going to happen.

My cousin, who was older than I, had a Model T touring Ford and we started for Bob's Creek, near Pavia, at 3:00 a.m. because the roads at that time were mostly made of stone and dirt.

We arrived at our destination near the Cox Children's Monument around daylight. The grass and weeds were cold and wet and it was easy to pick up a can of grasshoppers, which we used for bait.

We fished all day. Once we heard the balloon roaring over the mountain, but of course, we could not see it.

My cousin caught 23 trout and I caught 17 trout that day. All were between 7 and 10 inches, with heavy bodies and nice pink meat. At that time there were lots of grasshoppers, water crickets and stick worms to be found in Bob's Creek. The daily creel limit was 25 then, and the length limit was six inches.

In my 17 trout, there was an odd-looking one—when I showed it to some fishermen, they told me it was a brown trout. It was the first brown trout I had ever seen or caught. We were used to catching brook trout.

My aunt got married and quit fishing when I was 10 years old, so she gave me her bamboo fishing rod with a small brass reel on it. I used it until I broke it so many times that it was too short to fish with anymore.

I started to fish with flies and have done that with bamboo rods all my life. I still do fish sometimes, but I'll soon be 86 and cannot walk the streams so well.

I still tie my own flies, and buy and sell bamboo rods and fishing creels to pass the time in the winter.

The names and types of flies have really changed. You don't see the old ones like Female Beaverkill, Grizzly King, Gray and Brown Hackles, Professor and Yellow May anymore.—*Ray C. Sease, Portage, PA.*

Juniata River shad?

I have read most of the material on shad restoration I could find, including Philadelphia Electric Company's booklet. Nowhere is the Juniata River mentioned. Have shad been stocked in this river, and if so, where? I own property near McVeytown and would like to know if we will experience shad fishing in the future.—*Stanley Levandoski, Ephrata, PA.*

Thank you for your interest in shad restoration. The Juniata River has played an important role in shad restoration. In fact, our Van Dyke Hatchery is located on the Juniata River near Thompsettown, and the majority of the 130 million shad fry stocked in the Susquehanna River Basin to date have been stocked in the Thompsettown/Millerstown area. Throughout the summer and early autumn, our hatchery shad are very abundant in the lower Juniata.

We have had reports of adult shad caught by anglers in the Juniata for about five or six years now. Our fish culture staff at the Van Dyke Hatchery has observed adult shad moving upstream past Van Dyke for the last three years in a row. Last year, Scott Rhoades, a long-time member of our staff, caught and released several shad on a small jig during his lunch break. The fish he caught were probably fish he cultured four or five years earlier!

Two years ago, we received an unconfirmed report of a school of shad at the base of Raystown Dam. We are attempting to verify the upstream limits of shad migration by sampling at the base of Raystown and Warrior Ridge dams. We ask that anglers report sightings of shad in these areas.

Recent documented evidence indicates that about one of every 400 fry we stock survives and returns to enter the fish lifts at Conowingo Dam. Because of this excellent survival rate and the fact that most of the fry have been stocked in the Juniata River, we expect adult shad runs in the Juniata River to respond to restoration very rapidly. Look for good shad runs in the Juniata River soon after the year 2000, when fish passage facilities at York Ha-

ven Dam become operational and shad will have free access to the vast upstream spawning areas. Remember, there is no open season for shad in the Susquehanna River Basin, so all shad hooked must be immediately released unharmed.—*Michael L. Hendricks, Fisheries Biologist.*

Kudos

On Saturday, September 28, 1996, two of your officers helped make the Lebanon County Youth Field Day a tremendous success. WCOs Bill Martin and Terry Deibler taught more than 125 youth ages 9-15 water safety and canoeing techniques. Their professionalism and enthusiasm were truly outstanding as they captured the attention of their young audience.

However, the reason for this letter is to inform you that at approximately 11:30 a.m. these two officers did something that will be remembered by those who worked on Youth Field Day for years to come.

We had a physically challenged Boy Scout Troop in attendance. Two of the young boys were confined to wheelchairs. While they were at the fishing station they noticed the canoes in the water and asked the fishing skills instructors if they could ride in the canoes. Bill Martin was approached with the idea and said he would definitely try to help. With assistance from the onsite EMTs, one of the boys, who had no control over his legs, was strapped to a backboard and carefully placed in Bill's canoe. This was a flexible device made for this boy to be used anytime he was not in a wheelchair. Terry helped another child into his craft, and off they went over the water course. All appropriate safety precautions were taken. The adults who saw Bill and Terry work with these children were overwhelmed with pride for these two dedicated men.

It is moments like these that make working as a facilitator for the SMART program and co-chairman of LCYFD meaningful and worthwhile.

You, and the rest of the administration of the Pennsylvania Fish and Boat Commission, can take great pride in providing the residents of Pennsylvania with such dedicated, well-trained professionals. Officers Martin and Deibler have to rank right up there as two of your best.—*John H. Blaich, co-chairman, Lebanon County Youth Field Day.*

Get Ready!
Opening Day
for Trout
is
April 12th

GO DEEP

for
Opening
Day
by
Charles
R.
Meck



For the past 25 years I've begun each opening day on central Pennsylvania's Bald Eagle Creek. I've learned that trout on these cold days often stay near the bottom. Granted, you occasionally see trout rising to a hatch on opening day, but this is the exception and not the rule. So if you've had little success the past few years, or if you'd like to raise your score, you might want to change your method of fly fishing. The tactics and techniques that have worked for me and my angling friends on the Bald Eagle in mid-April can work on any Commonwealth stream on opening day.

Opening day a few years ago began like so many that I remember. A half-dozen diehard fly fishers arrived with me at the stream just before the beginning of the season, and we immediately began to look for a not-too-crowded section where we had room to cast. As the season began dozens of bait fishermen around us

showed us why they usually surpass fly fishers in the early season. One angler next to me landed a dozen trout in the first half-hour while I had only one strike to show for my effort. Another angler used salmon eggs and had his limit before I had a strike. I grew more frustrated as the season progressed. Why didn't these trout take that Woolly Bugger with more determination, I kept wondering?

Soon I had enough and headed downstream with Andy Leitzinger and Ken Rictor following me. We looked for more space and fewer anglers. After walking a few hundred yards and fishing as we moved, we came to a long, deep riffle that flowed into a fairly sizable pool. Guess what? This pool and riffle at 9:00 a.m. on opening day did not hold one other angler. That could mean only one thing—this area hadn't been stocked. As we arrived I halfheartedly tossed a weighted Bead Head Woolly Bugger into the riffle

in front of me. On the very first cast the big pattern went deep and stopped, and I set the hook. I landed a 13-inch rainbow. Two casts later and another trout hit that same Woolly Bugger pattern that drifted almost on the bottom in the riffle. The three of us had hit the mother lode and we had this stretch to ourselves on opening day. Not one other angler showed up on that stream section during the entire morning.

Downstream, in the pool below this riffle, Ken Rictor complained about his lack of strikes. I looked at his pattern, told him I thought he didn't have enough weight on the Woolly Bugger, and handed him one of my heavier bead head patterns with weight added to the body. On the very first cast with this heavier wet fly, Ken hooked a trout. He quickly released the rainbow and began casting the weighted bead head to the upper end of the pool. In not more than two casts

he landed another trout—this one considerably heavier than the first.

I now stood back for a few minutes and watched Ken fly fish. For the first half-hour, after he began using that bulkier pattern, he hooked one trout after another. Remember, for the first half-hour he fished that pool where he didn't have a strike. For the next half-hour he couldn't keep the trout off his fly line. What made the difference?

Both Woolly Buggers were tied on similar hooks with identical bodies and hackle. Only one thing differed in the two patterns—a heavier Bead Head Woolly Bugger that sank almost to the bottom on each cast. It couldn't have been demonstrated more effectively than that hour on opening day. The one thing Ken Rictor had done differently the second half-hour was to use a heavier Woolly Bugger that sank deeper.

The three of us waded out of the pool and riffle on that section around 11 a.m. We had landed and released 35 trout on heavily weighted Woolly Buggers that sank almost to the bottom. What a fantastic two-hour fishing experience on opening day! What a way to begin the trout season! And I'm certain we would not have done as well without those heavily weighted patterns.

You say it's difficult to cast a heavy pattern with lead added to the tippet? When you want to go deep, add weight to the body when you tie the fly. I use a heavy hook, often a salmon hook, I add a large bead, and I added about 25 to 30 wraps of .015 or .020 lead to the body before I tie the fly. All this extra weight guarantees that the pattern will drift near the bottom.

Why is it important to go deep on opening day? You'll encounter two things in mid-April that you don't see later. High water and cold temperatures often keep trout deep next to the bottom. In this type of setting, trout, if they do feed, do so near the bottom. Often anglers use patterns on opening day that sink, but they don't sink far enough. Only when you place the offering near the bottom will you begin experiencing success.

Patterns

Over the many years of opening days, I've had considerable success with several wet flies. I add weight to the body of all the wet flies when I'm tying them. Let's look at some of these and how much weight I add to each to sink them deep.



Bead Head Pheasant Tail Nymph

Bead Head Woolly Bugger. I have found that a dark-olive-bodied Woolly Bugger works best on opening day. I usually add some Flashabou to the black marabou tail to attract trout. The bead head adds additional weight, and as I said before, I often tie this and some of the other stream patterns on salmon hooks for additional weight.

Green Weenie. I recently talked to a fly shop owner in eastern Pennsylvania and he told me he had sold more than 1,000 Green Weenie patterns in one year. Why? Because they work—throughout the year—not only on opening day. To some of my Green Weenie patterns I add 15, 20 or 25 wraps of .015 lead, and I color code them so I know how much weight I've added. I use green, chartreuse and yellow thread to keep account of the weight I've added to the body. If you want the pattern to go even deeper, add a bead to the pattern.

Bead Head Pheasant Tail Nymph. When I encounter those streams on opening day that are fairly normal in flow but cold, I most often resort to a Bead Head Pheasant Tail Nymph. I add 10 wraps of .005 lead to a size 16 pattern and 10 wraps of .010 to a size 12 bead head. This weight, plus the bead head itself, lets these flies sink fairly rapidly and get down where the trout are feeding. Although the size 12 pattern gets you deeper faster, I must admit I've had as much success with a heavily weighted size 16 pattern.



Bead Head Woolly Bugger

Other methods

I most often use a floating line when I'm fishing—even under most high-water conditions. However, when I want to get the pattern down in deep, high water, I often opt for a sinking tip line. These lines are more difficult to use than a floating line, but they take the wet fly down deeper and faster.

There are other methods available to the fly fisher to get deep on opening day. My son, Bryan, often uses two and sometimes even three wet flies tied in tandem. He uses a Woolly Bugger, Bead Head Olive Caddis, and a Bead Head Pheasant Tail Nymph in tandem. He ties the Woolly Bugger to his tippet, and then he ties the Olive Caddis on a two-foot tippet to the bend of the hook of the Woolly Bugger. He fishes the trio by tying another two-foot piece of leader and on the end of that he ties a Pheasant Tail Nymph.

Tactics, techniques

By now you probably agree that getting the pattern deep on those cold April days produces more trout. We've discussed ways of getting that pattern deeper, like adding weight to the body of the pattern, using heavy hooks such as salmon hooks, and using a sinking tip fly line. But there are still other things you can do to get the wet fly closer to where the trout are—near the bottom.

For one thing, with a simple mend of your fly line you can get the pattern deeper. After you've cast the pattern across stream or upstream, make a couple of mends (upstream curves in the fly line). This tactic allows the wet fly to sink faster. It also gives the wet fly a much more drag-free drift under the surface.

Even if you get the pattern down near the bottom you might want to alter your method of retrieval. I've often found that a simple twitch on the line once in a while gets trout to strike when a drag-free drift doesn't work. Alternate the retrieval and see if one method works better than the other. Often on those cold, blustery opening days I've experienced more trout striking the Bead Head Woolly Bugger when I twitch it than when I don't.

Vary the depth you fish the wet fly, too. If trout don't seem to hit it near the bottom, combine a twitch with fishing it up from the bottom or even near the top. By varying the depth and experimenting with your retrieval, you'll find where the trout are striking.





Volunteers Search for

HERPS

by Karl Blankenship

Art Hulse was cruising down a bumpy back road at the north end of Indiana County when he suddenly pointed off to the side and shouted, "there's some rock!" He hit the brakes, swerved the van off the road and came to a stop. Doors flew open. Hulse and nine others tumbled out and headed for the rocks. Methodically, they began turning stones and peering underneath. Quickly, they had something to show for their effort: A slimy salamander, black with white dots, and about five inches long.

The slimy salamander is so named because it excretes a glitter-like glue as a defensive mechanism when handled. After holding the creature, Hulse's hands were covered with a film that left his fingers stuck together. "I've seen garter snakes with their mouths literally glued shut from trying to eat these things," said Hulse, a biology professor at Indiana University of Pennsylvania.

Hulse was in the field with volunteers who are scouring certain portions of the state looking for slimy salamanders and their relatives. By using a growing corps of volunteers, Hulse ultimately hopes to complete a systematic, statewide survey that documents where each species of reptile and amphibian is found.

His interest in conducting such an inventory has been growing since the early 1980s. At that time, a herpetologist at the Carnegie Museum of Natural History compiled all the available information about the location of "herps" (catch-all phrase for reptiles and amphibians) in the state. "When I took a look at that, it was shocking to see how little hard data we had on the distribution of amphibians and reptiles in Pennsylvania, a state that is theoretically extremely well known," Hulse said. He wanted to fill those gaps. But with 45,000 square miles of land to cover, "it was patently obvious right from the start that a single person couldn't do this." In fact, he concluded, there probably weren't enough herpetologists in the entire state to do the job.

The solution came to Hulse as he participated in the Breeding Bird Atlas, a project sponsored by the Wild Resource Conservation Fund (WRCF) to map the distribution of all breeding bird species found in Pennsylvania.

Want to Join this project?

The Pennsylvania Herpetological Atlas Project needs your help. The atlas project, which is sponsored by the PA Fish & Boat Commission through funding from the Wild Resource Conservation Fund, is seeking volunteers to participate in a biological survey of reptiles and amphibians in the state. This is a chance to get outdoors and be involved with current scientific research.

For information, contact: Dr. Arthur Hulse, project director, or April Claus, field director, Indiana University of Pennsylvania, Biology Department, Indiana, PA 15701. Phone (412) 357-2279.—KB.



Ornithologists for years have drawn information from a small army of enthusiastic bird watchers who participate in a wide variety of bird counts and surveys. If volunteers can count birds, Hulse reasoned, why not herps?

With funding from the PA Fish & Boat Commission via the WRCF, he began outlining how a survey should be done. The state would be divided into 5,200 geographic blocks of about 8 square miles each. Volunteers would either select, or be assigned (by their choice), to a particular block. Then they would attempt to locate all amphibian and reptile species present in that block.

Initially, Hulse had been concerned that people would be reluctant to volunteer to get down in the mud and rocks looking for herps, which most people don't consider as glamorous as bird watching. But his worries were quickly put at ease. By last fall, roughly 150 people statewide had volunteered to participate in the survey. They included laborers, doctors, university professors, students—people from all walks of life who had an interest in reptiles and amphibians. In fact, while Hulse had intended the survey to begin with a pilot project that covered only three counties, so many people have volunteered, the project has already spread across to other areas of the Commonwealth.

Volunteers are first screened by a written survey, and then participate in day-long workshops to learn about identifying

everything from the five-lined skink to the common musk turtle. They also learn survey techniques and survey "ethics"—the proper handling and treatment of animals. After all, surveying herps is more invasive than looking for birds, Hulse pointed out. "You don't

shake the trees to get the birds out," he said, "but you do have to turn rocks and so on to find amphibians and reptiles."

Pennsylvania is home to 21 species of salamanders, 16 frogs and toads, 4 lizards, and 21 snakes. One native species, the Eastern tiger salamander, is gone from the state, and another nine species are considered threatened or endangered.

Volunteers are given information about which species are most likely to occur in their block so they have an idea of what they are looking for. They get professional field training at the workshops about how to find secretive species, and are given a handbook describing general habitats used by different herps. Snakes, it points out, are most commonly seen along streams or on south-facing rocks.

Mostly, Hulse said, finding the animals is a matter of practice and knowing what to look for. "People can literally walk by an area that might support as many as 300 to 400 snakes per acre, spend their entire lives there, and never see a snake just because they're not looking," he said. With practice, Hulse believes a volunteer will be able to identify most of the common and uncommon species in a block in about 20 hours of work spread over several months. Volunteers are not expected to locate truly rare species. If they do, an expert will be sent out to double check the finding.

"When it comes to a threatened or endangered species, when there might be more riding on that location in terms of credibility and legal considerations, we'll use additional quality control," said Andrew Shiels, the Fish and Boat Commission's

Nongame and Endangered Species Unit Leader. "For the most part, I think we're going to recruit some people who have some interest in this already and harness their abilities and their enthusiasm to help us get some pretty recent information on what's found where in Pennsylvania. We should be able to add lots of dots on the maps."

When it comes to filling in the gaps on maps, a corps of volunteers has significant advantages over a handful of scientists, not just in the amount of territory that can be covered, but when it can be examined. Many herps are extremely sensitive to weather. Someone has to be at the right place at the right time, not when they can fit a day of field work into their schedule.

"The slimy salamander is an example of something you're not going to find unless the conditions are just right," Hulse said. Normally, this species would have been living several feet underground, but several days of wet conditions had brought it close to the surface. "We try to impress on the volunteers that you have to be there when the conditions are right," Hulse said.

While most volunteers work alone or with a partner, Hulse was in the field for a day of practice with a handful of local volunteers. After spotting likely habitat, usually slopes with lots of exposed rock, the volunteers would pile out of the van

and methodically begin turning medium-size stones, roughly 8 to 12 inches in diameter, looking underneath. If nothing was there, they put back the rock as closely as possible to its original position so they wouldn't disturb any other creature that might be using it for habitat. It may

seem like down-and-dirty work, but the volunteers were enthusiastic: "I love this stuff," said volunteer Steve Leitkam, who is also vice president of the Pittsburgh-based Tri-State Herpetological Society.

But as the day wore on, it also illustrated how sensitive herps are to conditions. While recent rain and high water had brought the slimy salamander to the surface, the unusually wet weather appeared to have sent many other species looking for new cover. The hunt revealed few additional herps. "I drew a blank," said wildlife photographer and survey volunteer Tom Dietz after turning stones on a particularly promising rock pile. "And if I ever saw potential habitat, this is it."

Another volunteer, Jason Finkle, an IUP graduate student, was philosophical. "Some days you find thousands," he said. "Other days, you go to the same place and get nothing." Because volunteers typically work on a block over the course of a year, there would be better days to find whatever else might be lurking among the rocks.

Initially, this survey effort is designed as a two-year pilot project to refine searching and data compilation techniques. However, if this pilot project is successful and funding is available, the project may expand to other regions of the state and eventually statewide. It will give researchers a "snapshot" of what Pennsylvania's reptile and amphibian diversity and distribution was like around the year 2000. Using that data in the future, scientists will be able to detect changes in species distributions in the state.





SPRING'S *First* *Largemouth* by Darl Black



“Anticipation, anticipation is making me wait, keeping me waiting.”

With apologies to Carly Simon, those lines from her 1975 hit play over and over in my head this time of year. It's the first of March and winter's wrath is slowly winding down. With the sun reaching higher in the sky, the days are getting longer. The air temperature is warming week by week, and the ice is weakening day by day.

For the past several months, bass anglers have been forced to subsist on a diet of fishing videos. It is a fix that keeps one alive, but just barely. Actually, watching others on a television screen connect with big bass while the snow flies outside is a form of torture. However, Pennsylvania anglers accept this cruel and unusual punishment knowing better days are just ahead.

A drive-by of a favorite lake shows the ice is gray and starting to dissolve. Now last-minute preparation begins in earnest. Overnight express orders are phoned to mail order houses. Fresh line is spooled on reels and boat batteries are given another charge to bring them back to full readiness.

At last, the ramp is free of ice! A “personal day” is quickly arranged at work, providing an opportunity to quench the incredible thirst for the first bass strike of a new year.

The wait is over! You are on the water. But now, what do you do to catch spring's first largemouth?

Happening times

The National Survey of Fishing and Hunting from the U.S. Fish & Wildlife Service indicates more Pennsylvania anglers may be facing the above scenario. The latest figures put Pennsylvania third in the nation for the number of resident bass anglers, and fourth in number of days directed at bass. Do these newcomers understand what it takes to catch a bass early in spring?

Even among some longtime bass anglers, the ice-out period has remained

a mystery. The lake environment is considerably different from what it will be in June, and they can't find bass in the usual summer haunts. Some lure presentations successful later in the season provide only casting practice during the early spring.

For other anglers who do not partake in the early season, the concerns may be different. I have heard some insist that bass can't be caught until the water temperature is in the mid-50s. Completely false. Another misconception revolves around what bass are actually doing in the shallows. Some have the mistaken notion that the entire spring is a spawning period. Nothing could be further from the truth. Largemouth bass do not begin nest preparation until the shallow water temperature in individual lakes stabilizes around 60 degrees. That does not occur until after the first of May on Pennsylvania waters.

So what's really happening with largemouth bass in lakes from ice-out through April? The fish are on a feeding binge. Under the ice, bass take in a limited amount of food because of their lower metabolism rate in cold water. However, warming water triggers increased metabolism, thus a need to take in increased nourishment.

In the early spring, though, bass do not go charging about after forage. Instead, they search for food that can be easily obtained without exerting effort. Bass want something that literally falls into their open mouths. Their choices are limited. Last year's baitfish schools have been reduced by predation, and this year's hatch is still months away.

Largemouths may become scavengers. It's not the picture many fishermen want conveyed about their favorite gamefish. I recall reading a paper that suggested ice-out bass may feed on winter-killed shad or other dead baitfish that were preserved in the ice. Many of the largemouths I catch spit up pieces of crayfish. Since crayfish are fairly inactive at this time, I picture bass rooting for



Above, clockwise from top left, are: single-blade spinnerbait, two sinking lipless rattle baits, suspending spoonbill bait. Below, a variety of soft-plastic and pork jig trailer options.

crawdads among rocks and stumps like a skunk digging for grubs. As water continues to warm, the shallows attract increasing varieties of forage fish, thereby providing bass more food.

Early spring locations

During the stormy turmoil of late fall, largemouths usually move to deep water. Ice cover on the lake helps to stabilize the aquatic environment, and bass often move to moderate depths to winter over. Loss of ice cover brings an increase in water temperature, which compels bass to move into shallower water in search of prey.

The distance between largemouth winter sanctuaries and early spring feeding areas may be as little as a few yards or as much as several hundred yards, depending on the lake's structure. Shallow springtime locations vary, also based on specific lake characteristics. Pennsylvania has diverse waters, so expect bass to react somewhat differently in moun-

tain reservoirs, flatland reservoirs and natural lakes.

The first key to finding ice-out largemouths is warming water. When evaluating where to fish, keep this sequence in mind: Shallow lakes warm quicker than deep lakes; dark bottom areas warm quicker than light sandy bottoms; sheltered waters (bays, canals, sloughs or backwaters protected by islands) warm quicker than exposed shoreline of the main lake; and because of prevailing northwest winds, bays on the northwest corner of a lake warm before other areas. Then realize there will always be exceptions.

There is no absolute magic temperature. I have happened into a bonanza of bass in 44-degree water temperature, and then struggled to catch a single bass in 48-degree water. The factor that triggers a good bite is a warming trend.

Steadily climbing water temperatures draw more fish shallow, and the activity level of bass likewise increases. However, when a reversal of weather occurs, bass retreat to slightly deeper water. Most anglers can understand this fish behavior when the reversal is caused by a severe weather front with cold rain, high winds and possibly snow. But bass have the same reaction to a prolonged period of overcast days that shut off sunlight to the water, canceling the warming trend.

Retreating bass may find sanctuary in deeper water in the bay or slough. On some reservoirs, the bass may be forced back to the edge of a creek channel or to the first breakline outside the shallow area. Bass may also suspend off steep banks.

Cover is another key to ice-out bass location. If a portion of a bay has cover and the other side is simply barren bottom, focus on the cover. Specific cover varies from lake to lake. Check out any of the following: Stickups, stumps, deadfalls/blow-downs, beaver lodges, remnants of last year's vegetation, and of course, docks. Individual boulders or small outcroppings of rock draw largemouths if the rocks appear out of place in a softer bottom area.





In some lakes, those first hungry largemouths appear in the shallows before ice is off the main lake. On lakes with canals, backwaters or slough-like creek inlets, bass can be found intermingling with ice-out crappies and bluegills that have moved into the same areas for the same reasons—food. On some reservoirs, bass move toward the shallows in stages, holding on a creek channel edge near shoreline flats or on secondary points at the mouths of bays until temperatures climb into the high 40s.

Tackle up

Finding the correct combination of water temperature and cover is half the springtime game. The other half is selecting the best lures and presentation methods.

Based on lakes I fish most often, a jig-and-pig (or jig-and-craw) is my number one selection. This skirted jig-with-trailer bait can be pitched to visible shallow cover and jiggled enticingly, as well as dragged along the bottom in slightly deeper water to locate submerged cover and mini breaks that hold largemouths. Bass feeding on crayfish are very attuned to this crawdad-like bait.

While I have faith in a jig-and-pig for shallow wood in stained-water lakes, it is not the best ice-out bait choice everywhere in the state. In some waters, four-inch worms are a preferred lure. On other lakes, suspending minnow baits rule. No single lure is perfect for all ice-out situations. Let's examine presentation options a little closer, keeping in mind that any bait you choose should be fished slowly.

The first largemouths moving into the shallows are skittish. If the water is exceptionally clear, bass will be exceptionally spooky. This calls for smaller-profile lures, lighter weights for less splash, and longer casts. Practically weightless tube baits and four-inch worms fit the bill here. Or try a slow-fall spider jig on a lightweight weedguard leadhead.

Smaller baits may be the ticket on some dingy-colored water, too. In the shallow bays of 12,000-acre Pymatuning, fishing buddy Lee Duer balks at my jig-and-pig.

"I depend largely on four-inch worms during the weeks following ice-out," says Duer. "I rig the worm Texas style on a 1/0 hook with a 1/16-ounce cone sinker.



Even though I cannot see bass in the dirty water, I cast onto the bank and drag the worm into the water so I don't spook the fish."

The steep sides of Raystown lake are far removed from the flat shorelines of Pymatuning. Woody Knis works deep suspending minnow baits to trigger strikes. Bass moving up from wintering haunts in the main river channel first contact the banks at bluff tailings, or swing areas, as Knis calls them.

"The bass suspend on swing areas—places where the river channel swings away from the bank—as well as off blown-down trees that extend over deep water," says Knis. "Cast a long-lipped minnow bait like a Spoonbill Rebel Minnow or Suspending Rattling Rouge parallel to the bank, crank it down eight feet and begin a sweep-pause retrieve to the boat. It is important to allow long pauses. Expect bass to strike when the bait is dead in the water."

Suspending minnow techniques work on shallower lakes when bass retreat to creek channels or secondary points under cooling weather patterns. If you don't have a spoonbill bait in the tackle box, try a sinking lipless rattle bait. Fish it with a sweep-and-stop retrieve, contouring the bottom.

Dave Lefebvre finds his first largemouth of the season in the sloughs of Presque Isle Bay with a Carolina-rigged lizard or crayfish. Since the bottom is comprised chiefly of sand, Lefebvre probes the backwaters looking for remnants of last year's vegetation.

"First contact is made with bass that stack up on the darker bottom areas of old weeds in three to 10 feet of water," says Lefebvre. "The Carolina rig is bet-

ter than a jig because the bait swims just above the bottom mat of decayed vegetation while the sinker stirs up sediment. Keep the leader short, no more than 18 inches."

When water temperature reaches the high 40s, other baits come into play. Add a slow-rolled spinnerbait to your repertoire. Slow-rolling means retrieving a spinnerbait at a slow speed so it just skims the bottom cover. Also, I am particularly fond of a Floating Rattle Trap for working slowly over shallow weedbeds. The lure dives only about 18 inches on a slow retrieve.

Discover the potential


I eagerly await the thaw to catch those first bass of the season. It means I have survived the winter doldrums; it is my rite of spring.

Early spring catches are important for another reason. It provides an opportunity to discover the potential of favorite lakes. Serious anglers will catch and release numbers of big largemouths during the six or seven weeks following ice-out. Fishing the ice-out period will produce largemouths you never imagined, and probably will never see the rest of the fishing season.

With this kind of fishing opportunities comes special responsibility. Harvesting exceptional-size bass anytime during the year affects the big-fish population structure, but taking these fish in the spring has a particularly negative connotation because the heavyweight females are carrying eggs. As always, care should be taken to return exceptional-sized bass to the water unharmed.

I encourage the use of de-barbed hooks. Hooks with barbs pinched down do not tear mouth tissue and speed release. Having used de-barbed hooks exclusively for over two years, I can say that they do not result in any increased loss of bass.

If you're holding a bass for a quick picture, use a vertical lip-grip so the fish hangs straight down, or use two hands to support the fish horizontally. Do not over-extend the jaw with a single-hand horizontal lip hold. When releasing the fish, carefully slide it into the water.

Anticipation. Spring is almost here. I can feel the "tick" from a lunker largemouth as it sucks in my jig-and-pig. Anticipation keeps me waiting. 



The Wild Resource Conservation Fund

The Pennsylvania Constitution states that the "public natural resources are the common property of all the people, including generations yet to come." It further pledges that "the Commonwealth shall conserve and maintain" those resources "for the benefit of all the people."

Even though the state constitution makes that promise, no one actually knows what that natural resource heritage includes. Outside of the economically valuable game species, other mammals, fishes, plants and insects are largely unstudied.

Responsibility for those nongame species rests with the Fish and Boat Commission, Game Commission, and the Department of Conservation and Natural Resources, but those agencies have never had the financial resources to manage them actively. No money from the state's general fund is used to support nongame wildlife research and management.

helps pay for basic scientific research on the state's varied nongame wildlife and wild plants.

"The fund is there to financially shore up the commitment of the agencies, so they can go ahead and manage and protect specific habitats and continue the data collection process," says Frank Felbaum, Executive Director of the Wild Resource Conservation Fund. Even though the WRCF finances the work, the research projects are sponsored by the Fish and Boat Commission or one of the other state resource agencies.

In the past few years, the fund has supported several high-profile projects, including the restoration of the osprey, fisher and peregrine falcon to the state. It has also aided the return of river otters to many streams the animal once occupied. And it has funded research about the effect of acid rain on nongame fish in streams.

But most of the fund's projects go toward the nuts and bolts of scientific research: Finding out which species are present in the state, where they are and whether their numbers are increasing or decreasing. The habitat needs—and the ecological role—of most of the 3,400 species of plants, 63 species of mammals, 159 fishes, 37 reptiles and 36 amphibians found in the state are poorly understood. And scientists are only now beginning to examine the algae and insects in Pennsylvania waterways—the basic organisms on which almost all stream life depends.

In 1996, the fund spent more than \$900,000, the most ever, to support more than 50 research and education projects in Pennsylvania. That surpassed the previous record, set in 1995, of \$685,000, and was largely possible because of the



public's support of the new license plate.

Still, remaining data gaps are staggering. It has been calculated that at existing levels of funding, it could take nearly four decades to complete an inventory of just the state's plants. And the Pennsylvania Biological Survey, which is made up of wildlife experts and state agency officials, has calculated that it would take \$13 million a year to meet current needs for species research and inventory, management, education and habitat acquisition.



The Wild Resource Conservation Fund is financing a project to provide information on non-game species management in Pennsylvania and to develop a management plan that addresses all the needs of Pennsylvania's nongame resources, including darters. In 1997 the Commission began focusing more attention on nongame species by commemorating selected nongame species with an annual series of five limited-edition patches. Only 7,500 patches of each annual edition will be produced. The first patch features the rainbow darter. Patches are now available and sell for \$4.71 each plus 29 cents PA state sales tax for a total of \$5.00. Include \$3.00 shipping and handling for each order. Contact: Fulfillment Section, PA Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.



As a result, the General Assembly in 1983 created the Wild Resource Conservation Fund (WRCF) to help fill that void. With money donated by citizens through the checkoff on the state income tax form, and most recently, money raised through the sale of special "Conserve Wild Resources" license plates, the fund

Guide Service

by Joel M. Vance

Al Olsen was sitting on a cracked stool at the Cozy Cup, moodily drinking a powerful cup of coffee and brooding over his decrepit wallet. He barely had the price of the coffee he was drinking—in fact, he didn't.

"Gimme another one and put it on my tab, Olaf," he told the owner, grandly, as if he couldn't be bothered with pocket change.

Olaf, knowing full well Al was busted, sighed and slopped the coffee on the table. He figured everyone needs a favorite charity. Al was his.

Al hunched on the stool, a bristly little man whose face seemed collapsed because he failed to wear his cheap, ill-fitting false teeth. Tattered salt-and-pepper hair littered his creased, tanned neck.

His hands were knobby, with dirty, broken fingernails and a sprinkling of scabs from various mishaps—a slash from a pike's tooth, a rip from a bellicose motor mount. Al won no beauty prizes, but he knew more about fishing than anyone in Birch Lake.

The door on the Cozy Cup squawked and Al scowled at the sunlight that flooded in. The Cup was his refuge. It was a dark, yeasty place, cool in summer heat.

The couple approached him hesitantly. "Are you Al Olsen?" asked the man in a thin, husky voice. Al nodded cautiously, wondering if it was someone he owed money to and had forgotten.

"We'd like you to take us out tomorrow," the man said. "We've been fishing on our own, but haven't caught much of anything."

His wife hovered a half-step behind him, an anxious gray-haired woman with a worried frown etched in her brow. She looked tired. She caught Al's instant scowl, reading it correctly as refusal. "We'll pay well for it," she said pleadingly.

"I ain't no guide," Al said.

"It doesn't matter," the woman said. "If you're the best. Please."

Al thought about it. He drew circles in the spilled coffee on the Formica table and finally conceded the inevitability of work.

"Okay," he said. "Guess I can." The woman looked relieved and he shook the dry, thin hand the man offered.

"You go on back to the car," the woman said to her husband. "I'll work out the details." The man hesitated, then gave a spare nod and left. She turned toward him.

"Mr. Al," the woman said, "it's important that my husband catch a big fish."

"I ain't God, lady," Al said.



"My husband's father fished here many years ago when my husband was a little boy," she said. "My husband heard all his stories about big northernns and walleyes and muskies. He worshiped his father and waited for the day they could go fishing together. But his father was killed in an auto accident the day before they were going to fish together for the first time."

"So he never got to," Al said. She nodded. "Can't nobody guarantee a big fish," Al said, scratching the curly gray hair on the back of his neck.

"They say you're the best."

"Joe Dimaggio was the best, too, lady, but he didn't hit no home run every time up," Al sighed. "Okay, I'll do what I can. Meet you at the access at seven in the morning."

The couple was at the dock, the man wan, the woman still tired-looking. Dudes. Probably scared of boats, motors and bait that moved. "Well, no guarantees," Al said. "Ain't no guarantees in life."

"I know," the man said.

"You ready to fish," Al growled. The couple nodded.

Al motored across Birch Lake toward the Snake Island flats. He shut off the old motor and tied a River Runt on the end of the man's fishing line and pitched it over the side. "Troll through here," he said. "Might pick up a big northern, hot weather like this they like to sun like fat old hogs."

He began to row, fast enough to keep the lure working. Almost immediately the rod bowed and the man grabbed at the rod as if trying to throttle it. "Set the blasted hook!" Al growled. "Reel in that slack!" It was a northern, but a little one—maybe two pounds. "Snake," Al said disgustedly. He twisted the hook out with a pair of pliers and pitched the fish back.



Al shrugged, "Nothin'," he said. He was feeling guilty about taking their money for one lost fish. But he took the twenty the man handed him.

"I always wondered what it was like," the old man said. He walked slowly and tiredly up the hill. His wife put her hand on Al's arm and he turned to her.

He was horrified to see her crying. She held out her hand. He backed away as if she held a hot rattlesnake.

"Please," she said. "Take it." He looked down and saw a bill.

"Aw, lady, he paid me," he said.

"This is a tip," she said. She hesitated. "You see, my husband is dying. He has only a few weeks to live. He wanted this... resolution. I'm not explaining it very well, but you've made him happy. Please, take the money."

Al numbly took the bill, looking blankly at it. "You don't hafta..."

"Yes, I do," she said. She wiped at her eyes and went up the hill after her husband.

He looked at the fifty again and put it in his pocket. He shook his head and began to unload his boat. He remembered the erratic action of the boat and motor on the way home and, grunting with the effort, raised the motor.

There, wrapped around the shaft, was a fishing line, trailing down into the water. Somehow the prop had not cut it. He grabbed the taut line and felt a heavy weight. My God, was the fish still attached?

He began to haul it up, hand over hand, and felt the weight sliding and slipping. Whatever it was, it wasn't a fish. It was a large, flat rock and, hooked firmly through an eroded hole in its middle, was a River Runt. The big musky that had jumped was mere coincidence. Sometimes they did that, for no good reason.

Al looked up the hill, but the couple had gone. He could, he supposed, track them down at the resort and give them their money back. He thought about it, took the bills out and looked at them, smoothed them as the hot sun glittered over the lake.

Then he stuffed them in his pocket and limped up the hill toward the Cozy Cup.

"Olaf, this guidin' ain't for me," Al said. "Too stressful." Olaf plunked a cup of coffee in front of him and Al absently put the fifty dollar bill on the table.

Olaf's eyes shot open. "Sweet bat sweat!" he exclaimed. "Who died and left you that?"

Al looked bleakly at him. "Don't let's talk about dyin', Olaf. 'I thought I was gonna live forever.'"

Al finished his coffee and set the cup down. "Fill it up?" Olaf asked.

Al considered it for what seemed a long time. "Naah," he said. "I'm gonna get me some fathead minnows and go fish tonight for some walleyes."

He gathered up his change and went into the afternoon.



That was the only fish of the morning. The sun began to bear down. The old man was gray, despite the sun, while the woman huddled beneath a bonnet.

Al rowed steadily, keeping enough speed to work the trailing lure. "Mr. Al," the woman said. "We have to go in. We just don't...he can't..." she stopped, but Al knew what she meant. They couldn't cut it anymore.

Then the rod dipped sharply and the man almost lost it over the side. "Hang on!" Al shouted. "Set the hook!"

He saw the line hiss from side to side as the man reeled frantically. The rod bowed almost double and Al feared for it and the line, but it held. Far astern a long, lean fish leaped and splashed back into the lake. "It's a musky!" Al bellowed. It's a buster of a musky!"

The old man somehow found the strength to hold on to the rod as the line sawed back and forth through the water. He reeled steadily and Al groped for his battered landing net. "Don't let 'im go under the boat..." Al started to say, but the line arced behind the motor and Al watched in horror as it wrapped around the shaft. Everyone sat, stunned.

"Aw, geez, that's too bad!" Al exclaimed. It had seemed so important to the couple to catch something of size. But the man smiled and for an instant his face was young and spirited. "It's okay," he said. "At least I know what it feels like. I've spent my whole life wanting to know that feeling."

The old boat wallowed and the motor lugged on the way in. The midday sun was harsh when they bumped the dock. The man had trouble getting out of the boat. Al hauled him onto the dock.

"Thanks for everything," the man said.

Getting Opening Day Trout to

YOU

by
Linda Steiner



Here's a challenge for you. You have more than 2.3 million trout on your hands, a mixture of brooks, browns and rainbows. Those trout need to go into more than 4,800 miles of Pennsylvania streams, plus over 120 lakes, before opening day of the season.

The trout are spread over 10 hatcheries. These, in turn, are spread over the state, from Wayne County in the Pocono northeast, to Bedford County in the southwest, from Erie County in the northwest to Cumberland County in the southeast. You have 45 tank trucks with which to move the fish, and 90 people to help load and drive them.

Now factor in the need for some streams to be stocked early, some just before opening day, some that have to be stocked with trout from a specific hatchery, or with trout of a specific type. For spice, throw in postponements caused by blizzards and other nasty weather.

Do it all between March 1 and the trout opener in April, 30 working days, and do it all with a smile, keeping your constituents, the angling public, happy.

Sound like an overwhelming task, a brain-bender requiring a sharp pencil, sharp wits and lots of scratch paper? This is exactly the assignment the Pennsylvania Fish and Boat Commission faces each year, yet they take it all in stride. They've been stocking trout preseason for years and certainly have the practice, but that doesn't diminish the fact that the task they perform every spring would leave the rest of us gasping.

Many anglers going out opening day of trout season don't think about where the fish come from. The trout are just there; the immediate concern is will they bite. But where stocked trout provide sport, they had to come from someplace else, someone had to put them into the stream or lake, and all that took coordination. Even if you have assisted at a preseason stocking and helped carry buckets, you probably don't realize the amount of planning it took to get the trout there, let alone getting the fish to the meeting place on time.

Fish culture stations

Raising trout is a year-round activity at the Commission's 10 trout "hatcheries" or, more properly, fish culture stations: Benner Spring, Bellefonte and Pleasant Gap, in Centre County; Big Spring and Huntsdale, in Cumberland County; Reynoldsdale, in Bedford

Get Ready! Opening Day for Trout is April 12th



County; Corry, in Erie County; Oswayo, in Potter County; Tylersville, in Clinton County; and Pleasant Mount, in Wayne County.

It wasn't planned that the facilities would be located in the corners of the state, plus the several smack in the center, making trout delivery easier—it just happened that way. That's where large springs occurred. Big Spring, Corry, Huntsdale, Oswayo, Pleasant Gap, Reynoldsdale and Tylersville fish culture stations all raise trout in spring water. Tylersville's springs gush an incredible 16,000 gallons per minute. The Bellefonte and Benner Spring hatcheries supplement their springs with well water, and Pleasant Mount uses a surface water reservoir. Spring and well water provide the most dependable water flow and temperature.

In planning for your spring fishing, the hatcheries are assigned production goals, how many catchable-size trout they are expected to contribute to the more than 2.3 million preseason stocking effort. This goal regularly numbers in the hundreds of thousands per hatchery.

Huntsdale station, for instance, is slated to produce over 415,000 trout for preseason stocking this year. Including inseason stockings, this hatchery will provide over 900,000 catchable trout in 1996. In central Pennsylvania, Bellefonte's preseason production goal is more than 310,000 trout; Benner Spring, over 289,000; and Tylersville,

more than 256,000. The smallest hatchery is Pleasant Mount, which will provide a little over 94,000 for opening day fishing, still a lot of trout to get on the trucks, into buckets and to the streams.

Logistics of stocking

Hatcheries feed the trout and grow them fat and scrappy, but how do they know where to put them, and when? The logistics of trout stocking include the input of many Commission employees, including local waterways conservation officers, who know where landowners will and won't allow fishing, and area fishery managers, biologists who know about waterway characteristics and use a formula to calculate how many trout each stream or lake receives. It at last comes down to three key people: Denny Ricker, Chief of the Division of Trout Production, who assigns trout production and stocking areas to each hatchery; Russell "Tom" Greene, the fisheries biologist who's head of the Coldwater (trout) Unit of Fisheries Management; and especially Marguerite Davidson, who is the Bureau of Fisheries Stocking Coordinator.

Because trout stocking has been done so many years now, it's not like starting from scratch each season. Today it's all in the details, factoring in changes and stocking refinements. The biggest help for Davidson, the stocking coordinator, has been the advent of the computer. In the days "BC," before computers, she

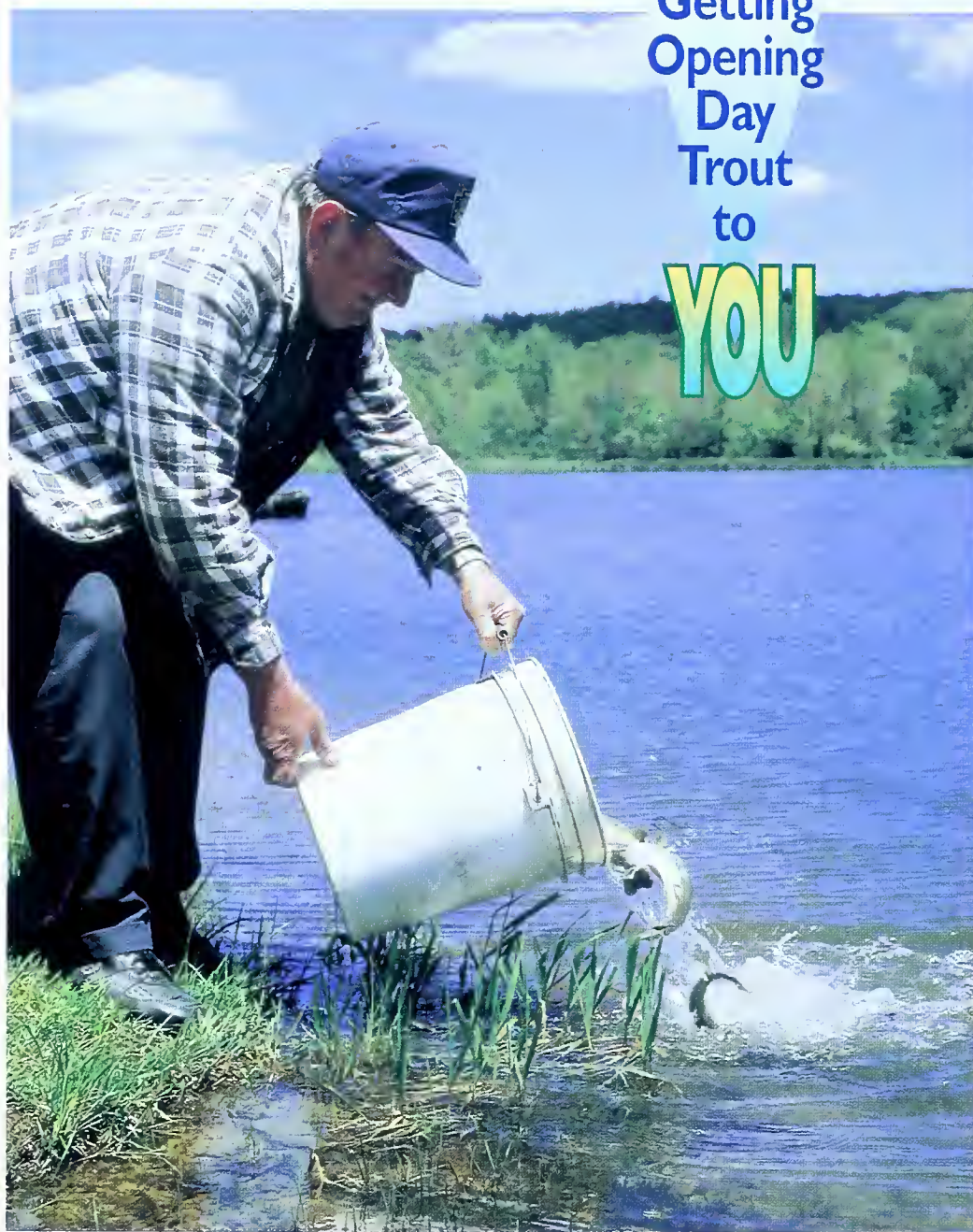
says, all stocking instructions were typed individually and sent to the hatcheries, a monster time-consumer.

It's a good thing the computer's there, because with the Commission planting trout for fall fishing, winter ice fishing, and with inseason stockings extending into June, trout are transported practically year-round. Although preseason trout won't reach streams until March, Davidson starts to plot how many fish go on which truck to get to which stream when, the previous October. That's when she receives notification of changes, such as streams taken off or added to the stocking list, revisions in stream mileage or a stream's stocking area, from the Fisheries Management Division. For more details on this stocking information, see page 62 of this issue.

Stocking plans with dates and times, developed by each hatchery manager, are then returned to Davidson in December. Davidson then pulls all this information together from all over the state, and by mid-January, with the aid of her computer, sends the completed schedules to those who need to know, like the fish culture stations, area fishery managers, the Commission's Law Enforcement Division, the Commissioners and the Bureau of Boating and Education. You, too, will see the result of Davidson's work in your local paper: Where and when you can meet the fish truck to help stock your favorite stream.

The Inseason Trout Stocking Schedule

Getting Opening Day Trout to **YOU**



will appear in the May-June *PA&B*. It'll be available the week before opening day.

When a lake or stream is stocked pre-season depends not only on how it fits into the transportation and manpower schedule, but also a juggling of waterways that are in the same vicinity and the number of trout that can be placed on a truck. Approved trout waters are coded for preseason stocking. "Code 1" means stock within 10 days of opening day. "Code 2" means stock within the period between the third full week in March and opening day. Northern streams with late ice-out or where winter lingers and hinders access, infertile water that doesn't hold fish long, or known poaching problems contribute to streams being designated as Code 1 or 2.

"Code 3" is dear to a stocking coordinator. These waters can be stocked any time after March 1—there are no restrictions to trout delivery time. Special regulation areas, like Delayed Harvest or Catch and Release, where anglers can fish

year-round, are noted to be stocked "as soon as possible."

How close a hatchery is to a stream or lake is only part of what determines whether its fish will be stocked there. Nearness, which means savings in travel time, vehicle wear and tear and fuel, is a prime consideration. But water quality characteristics and the fish disease history of a culture station also contribute to why your local stream may be getting fish from a hatchery far away.

Each fish culture station has its own area for stocking. Some send their stocking trucks far; some stay local; some county assignments overlap. Reynoldsdale hatchery stocks Bedford, Somerset, Fayette and Fulton counties. Pleasant Mount station stocks in Wayne, Susquehanna, Pike and Monroe counties. Oswayo just takes care of McKean, Potter and Tioga counties. Corry station does Erie, Crawford, Mercer, Venango and Warren counties.

Pleasant Gap's fish trucks stock in Centre County and roll out for points west: Blair, Bedford, Cambria, Clarion, Armstrong, Butler, Beaver, Washington and Greene counties. Benner Spring does nearby Clearfield, Mifflin and Juniata counties, plus Susquehanna and Wyoming in the northeast, and westward to Venango, Lawrence, Butler, Beaver, Armstrong, Allegheny, Westmoreland and Washington.

Bellefonte, too, hits counties east and west—Carbon, Schuylkill, Lycoming, Huntingdon, Elk, Forest and Jefferson. Tylersville ranges from Bradford, Luzerne, Sullivan, Columbia, Montour and Northumberland north to Potter, Elk, Cameron, Clinton and out to Armstrong and Indiana. Huntsdale and Big Spring reach from Cumberland County throughout eastern Pennsylvania. All stations produce brook, brown and rainbow trout.

How many fish in which streams?

The Pennsylvania Fish and Boat Commission's stocking policy is to use hatchery fish "to provide recreation in waters where fish populations are inadequate to sustain the fishery at desired levels." The trout are not allocated on a county basis. How many fish a stream or lake receives and how often it is stocked are determined by assigning each water area to a resource-based stocking category. Social and biological factors, such as whether there is a wild trout population present, stream width and the length of stockable water, water quality, recreation use potential (public access, parking, land ownership, nearness to urban centers), all figure into the formula.

For stocking determination streams are ranked A, B, C or D. Class A's are not stocked because they are such excellent wild trout fisheries. Class B's also have wild trout and are stocked only if they have been traditionally on the stocking list. Class C and D are the "bread and butter" of the stocking program, says Coldwater Unit Leader Tom Greene. The C's and D's have good potential for recreational use, average size and accessibility, and enough people live nearby to fish them.

The choice of trout species that go into a stream or lake is determined by the biologist who is the area fisheries manager. He bases this decision on the water habitat the trout will go into and the angling vulnerability and popularity of the fish. Rainbows do best in "sweeter," more alkaline waters, while brooks and browns can live in lower pH, more acidic

waters. Brook trout bite more readily after being stocked than browns and are recommended where a high return is desired, such as a lake in a city setting. But the Commission's policy is that "multispecies management is preferable"—good news for anglers who like catching different types of trout.

How often and how heavily a trout stream is stocked are determined by whether it has been designated "High Yield," "Optimum Yield" or "Low Yield." High Yield waters have a high potential for recreational use and receive the greatest stocking emphasis—getting trout preseason, three or four inseason stockings and the highest allocation of fish per water-acre. The majority of Pennsylvania stocked trout waters are in the Optimum Yield category, with a range of recreational potential. These receive a preseason and from one to three inseason stockings. The Low Yield streams get only a preseason stocking or an inseason stocking, providing an early spring angling experience. Low Yields receive the lowest allocation of fish per water-acre. They fall into the category for reasons that can include posting, warm summer temperatures, small stream size, low recreational use, or a good wild trout population.

Complicating trout delivery, segments of streams may fall into different categories, each in a separate management classification, with different species composition and different stocking rates. Several streams, or parts of several streams, might be on the same stocking truck, because for economy the Commission tries to send full truckloads. Plus the trucks, the fish culture workers and the waterways conservation officers all have to be available that day for the stocking to come together. Small wonder that bystanders and volunteer bucket-carriers who haven't heard about the codes, yields and stream categories question why the whole length of a stream isn't stocked in one day.

Surprisingly, stocking schedules are flexible. The uncertainty of spring weather, which can look just like winter, may cancel a stocking. The load is rescheduled by the hatchery, with input from the local waterways conservation officer, who also needs to be on the stocking. With rare exception, all the waters due to get trout for opening day receive them.



While you were sleeping

While you're still sleeping or just getting up to coffee and the early news, the fish culture station is already buzzing. Jeffrey Weaver manages the Bellefonte hatchery, one of the largest trout-producers in the state. Weaver says the stocking day starts between 6 and 7 a.m., when workers come in early to put water in the truck tanks. A little before 7:30 the drivers arrive to do a pre-trip inspection of their trucks. By then the other fish culturists are in the raceways, concrete troughs through which water flows and where the fish are raised. They are crowding the fish, pushing a screened rack lengthwise through the raceway, confining the trout to one end, for easier capture.

A morning's load calls for a certain number of fish on the truck. "We could never get five trucks out of here in a morning if we had to count all the fish," says Weaver. So samples of the fish in the raceway are weighed. By knowing the fish-per-pound ratio, the number of pounds needed to equal the number of fish specified can be determined. "We shoot for 45 pounds per 100 trout, a 10-inch fish," says Weaver. Each truck can carry 2,000 pounds of trout.

The trucks have six or seven water-filled compartments into which the trout go. At Bellefonte the weighed fish are placed by species into what looks like grain elevators. The truck drivers go from elevator to elevator, getting their allotment of brooks, browns and rainbows. According to the load sheet, several stream complements might be on one

truck, or one stream might receive multiple truckloads of fish.

With the weight and "grain elevator" system, five trucks can be loaded and on the road in an hour, says Weaver. Because handling stresses the fish, a high dissolved oxygen content is maintained in the tank water. Each driver travels with a form that tells him how many fish he's taking, the meeting time and location, the waterway name, who locally has been notified, and other vital information.

After the stocking is completed, the receiving water temperature, the number of stops made, and the condition of the fish are entered on the form. This is signed by the accompanying waterways conservation officer, who certifies that the fish were put in the designated area, and adds his or her comments.

It might be midnight before the drivers return to the hatchery, depending on the distance they have to drive and how long the stocking takes. Trucks bogged down in spring mud or other complications can draw out the day. Such runs are exceptional, says Weaver. Most trucks return by early evening. Then it's up and rolling again the next morning.

You can visit, in fact as Trout Production Chief Denny Ricker says, you're encouraged to stop at the hatcheries and observe the fish and the preparations for stocking. The Commission's fish culture stations are open from 8 a.m. to 3:30 p.m., seven days a week. Some have visitor centers. Corry's visitor center details the history of that trout-raising site, which dates from the 1870s, when it was simply known as the "Western Hatchery."

How well is the trout stocking system working today? Hatchery manager Weaver says it's a "pretty good system right now, though we're always adding little refining touches." Davidson, too, says, "I think we have it fine-tuned now, for the part I do. The computer is so much faster." Tom Greene says some stocking revisions are being made, the result of creel survey work in the 1980s, which should allow better use of hatchery fish. "We're always striving to do that," says Greene.

Denny Ricker comments that "each year the hatchery people and waterways conservation officers accomplish the very complicated task of trout stocking under a myriad of environmental conditions, like blizzards and floods, with very few problems. A very dedicated group pulls this off with few glitches. They're a neat bunch of hard-working folks."



serious sunfishing

by Mike Bleech

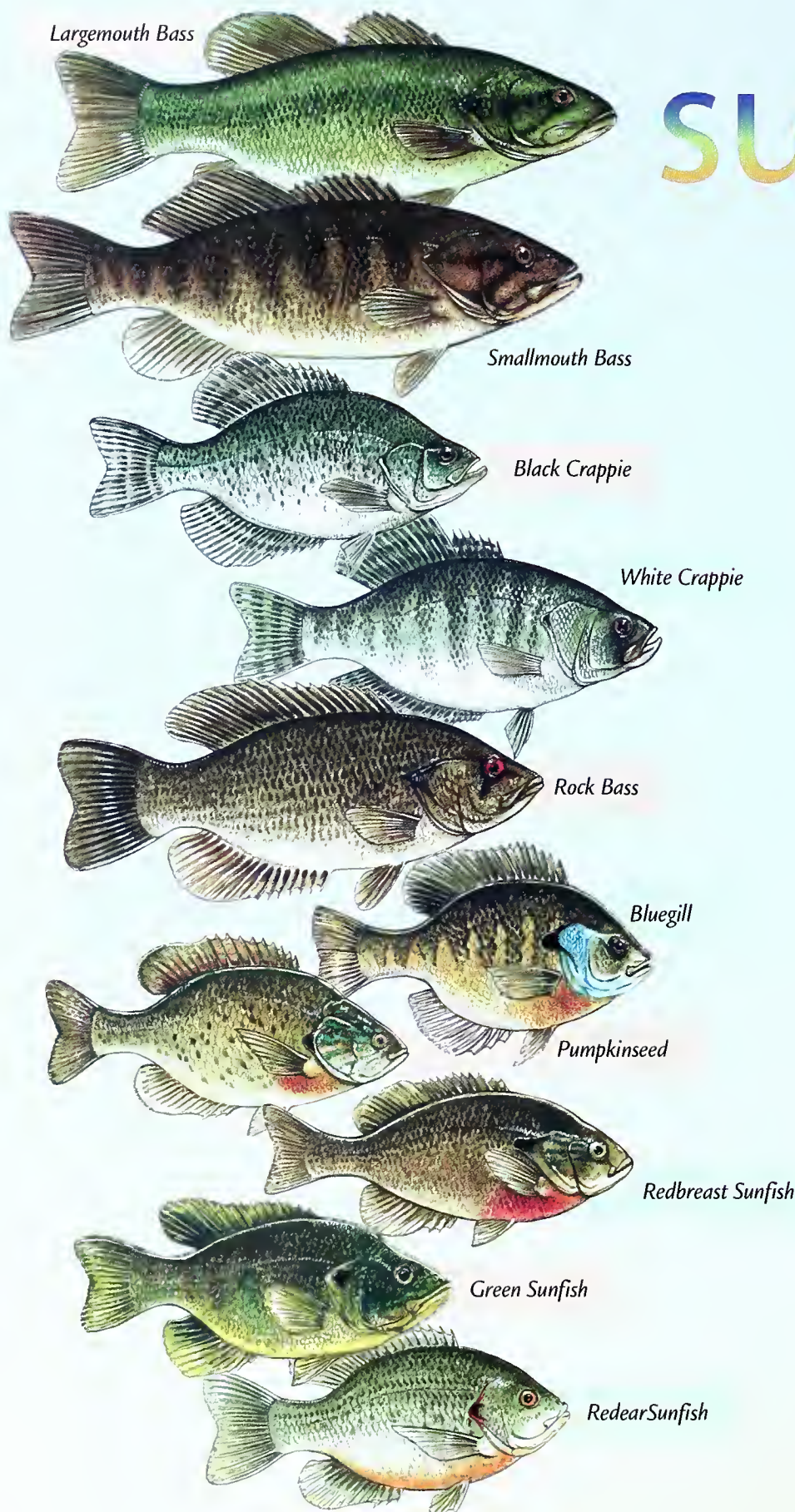


Figure 1. Largemouth bass, smallmouth bass, black crappies and white crappies usually are not referred to as sunfish, but they are part of the sunfish family. The fish we usually call sunfish include rock bass, bluegills, pumpkinseeds, green sunfish, redbreast sunfish, and others that are too small to interest anglers.

The last drops of a refreshing summer shower prompted my putting on rain gear when I stopped to fish. Overhead dark clouds rolled, but to the north the sky was blue and bright. Several other anglers, mostly kids soaked to the bone and two oldtimers huddled under an umbrella, were spread along the earthen dam. Within a half-hour I had all of the bluegills I wanted for dinner. As I retreated from the water's edge, one of the oldtimers, who had approached unnoticed while I was fishing, struck up a conversation.

"You get pretty serious with these sunfish, don't you?" He asked, with a look that might have indicated some hidden meaning for what he had just said. Like, isn't that a lot of fuss over sunfish?

"You know, we've had these kids here for a couple of hours and you've caught more fish in a few minutes. What's your secret?"

It seems these two gentlemen, serious fly-fishers both, felt a day of fishing in the Poconos was a better investment in those kids' future than some of the other things young people find to do in the city. But like many anglers, they figured all there is to sunfishing is tossing out a bait and waiting for the bobber to go underwater. That meets with some success often enough to satisfy many anglers, until they realize how much more rewarding sunfishing can be.

My "secret" is no secret at all, except for many anglers who take off their thinking caps when they pursue sunfish, as though sunfish were beneath their dignity, or that sunfish do not excite them. Well, sunfish do excite me, and I am serious about my sunfishing.

As always, you do not need a lot of expensive tackle, nor do you need complicated schemes to catch sunfish. It is still a game that keeps kids entertained, including this forty-something kid. Yet, a little extra effort, only the same effort you might normally make for larger game fish, often leads to considerable rewards.

Preparation

Probably the most critical piece of tackle for serious sunfishing is the line. Even though you might catch some sunfish using heavy line, you will catch far more and larger sunfish using fine-diameter, low-visibility line. I suspect there are two reasons for this success difference. The most obvious is that heavy line is so clearly visible, so intrusive, that it scares sunfish. The other, less obvious reason is that heavy line is stiffer and restricts the movement of the bait or lure at the end of the line. Fine-diameter line allows more natural movement.

Put aside all the advertising hype and decide for yourself which line is best. Observe it in the water. Which line is least visible to you? Some of the newer fine-diameter lines are much more visible than translucent monofilament line. A few of the finest sunfish anglers I have met use "invisible" sewing thread, which is simply very fine monofilament line. But that stuff is too fragile for larger bluegills and crappies. Though crappies are not our primary subject here, they are prized by most sunfish anglers, and they are often caught along with smaller sunfish.

Another source of very fine line is fly-fishing shops that sell leader-making materials. Check the tippet material testing less than 2 pounds. It is only necessary to use a leader about 6 feet in length of this ultra-fine line.

My current choice when crappies are about is an ultra-fine diameter monofilament line testing, according to the label, 4 pounds. But if bluegills and smaller sunfish are the largest fish I expect to encounter, I drop to 2-pound test.

Monofilament fishing lines typically are considerably stronger than what is indicated on the packaging. I expect this is because manufacturers can claim their "8-pound-test" line is stronger than someone else's. Anglers fall for this, but it is incredibly silly if you think about it. Because we have become accustomed to 4-pound-test line that actually is a couple of pounds stronger than 4-pound test, you should be prepared for line that actually is about as strong as it is labeled when you use a line which is marketed as ultra-fine diameter. Knots are critical, since this is the weakest part of the line.

Get used to carrying a landing net. You take a 2-pound-test ultra-fine line, tie in a couple of knots, clip on a bobber, pinch on a splitshot, rub it against weeds, logs and rocks, and you do not have enough strength to lift a flopping 7-inch bluegill.

Bobbers can be vital pieces of tackle, especially if you use the right bobbers. As with any item of fishing tackle, in choosing bobbers consider their purpose. Two come to mind immediately. One is to suspend a bait or jig at a precise depth. The other is to act as a strike indicator.

To suspend the bait or jig at the exact proper depth, adjusting that depth should be easy. One of the secrets of successful sunfishing is that sunfish are liable to suspend anywhere between top and bottom. Getting the bait at exactly



the same depth as the sunfish might not be necessary when the sunfish are very active. However, it becomes increasingly important as their level of activity decreases. In some cases, fishing around the limbs of a fallen tree, for example, you can catch sunfish at one depth, near one limb, and then when the action slows adjust to the depth of another limb and resume catching them.

As a strike indicator, a bobber is best if it can be balanced to the weight of the jig or bait rig (see Figure 2). An elongated bobber is required to accomplish this. The weight of the jig or bait rig should make the bobber stand erect. That is, its greatest length should be vertical. Then when a sunfish strikes, one of two things happens. If the sunfish takes the rig down, the bobber goes underwater. If the sunfish takes the rig upward, the bobber lays on its side. You will be surprised how many times the bobber lays down, a strike that would not be indicated by a bobber that isn't balanced. You would never detect these strikes with common round bobbers.

Avoid bobbers with metal line clips, or any other clips that pinch or kink the line, which weakens the line. You can't afford to weaken very light line.

Have you ever sharpened the tiny hooks you use for sunfish? It is a chore that demands keen eyes and nimble fingers. Yet, it is one step that will probably double the number of fish you catch.

One terminal rig, some sort of jig tipped with a grub, can handle most sunfishing situations. It has a few advantages. Sensitivity and hook-setting efficiency are better with the weight at the end of the line than with a splitshot a few inches above the hook. The light jigging action is more controllable. And the jig adds color and flash to the bait. Color can be quite important for fussy sunfish.

For any of the sunfish smaller than large crappies, a teardrop jig is most versatile. These tiny lures consist of a small piece of metal molded onto a hook. Carry some that are plain gold and silver, and various colors including yellow, "glow" white, regular white, orange,

serious sunfishing

chartreuse, red, lime green, and combinations of these colors.

Probably any grub makes good bait. I prefer maggots, but only one maggot at a time. A fair size sunfish has no trouble inhaling a teardrop jig tipped with a maggot. Note that maggots, all grubs I suppose, have a front end and a back end. Hook them in the back end and they will wiggle for a long time. One end of a maggot is blunt, the other pointed. The blunt end is the rear.

Flipping

A long rod can be a huge advantage in sunfishing. One of the most productive sunfishing methods is flipping, or dipping, or dabbling, or whatever you want to call it. This method provides accurate presentation and quick response. In southeastern states, you often see people flipping for sunfish with long cane poles, or long fiberglass poles made specifically for this purpose. They have never caught on to a great extent in the northern states. The long poles are unwieldy. I use a 7 1/2-foot ultralight spinning rod. Using an underhand lob, I can flip my rig into small pockets in weedbeds where the big sunfish hide.

Some serious sunfish anglers convert long fly rods for this purpose, replacing the small fly line guides with larger spinning guides so the line slides through more freely.

This might be the most effective way to fish large weed flats from a boat. It can also be done while wading very carefully. And it is the most effective method for rock-dwelling sunfish like rock bass when you can see the rocks.

Flipping is an aggressive method. Fish each opening in the weeds thoroughly, but don't waste more than a few minutes in any one place. Take the aggressive sunfish and forget the rest. By covering a lot of high percentage water, you get your rig in front of a lot of sunfish, and the chances of finding larger sunfish are good.

Normally I use a bobber while flipping for sunfish. The bobber lets me know and thus control exactly where the jig is. Without the bobber, the line would catch the top of the weeds, and the jig would swing toward those weeds at an unknown depth. The exception is when the depth varies considerably from one place to the next, fishing around rock piles or fallen

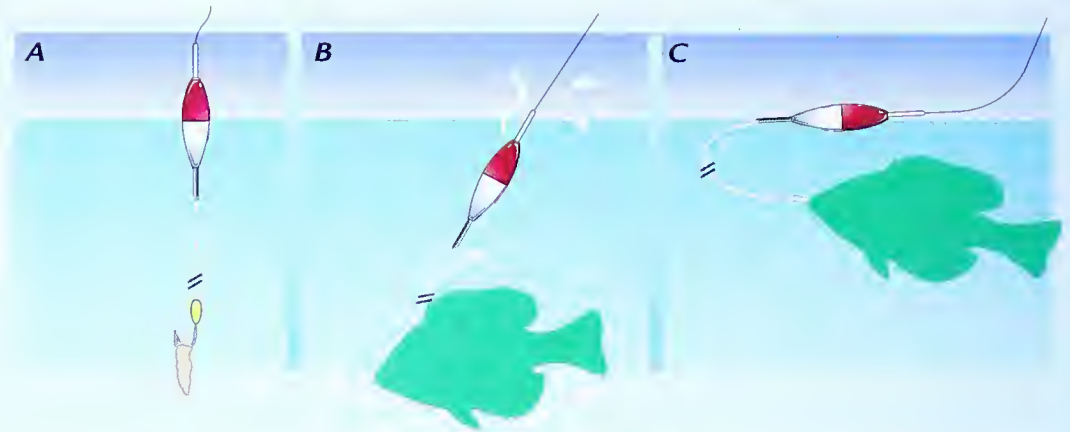


Figure 2. A balanced bobber must be elongated and small enough so that a teardrop jig tipped with a grub makes it stand upright (A). If a sunfish takes the jig down, the bobber goes underwater like any other bobber (B). But if the sunfish takes the jig up toward the bobber, the bobber lays on its side (C). With unbalanced bobbers, this kind of strike is not detected.

tree tops, for example. In cases like these, if possible, fish directly under the rod tip.

Don't try to flip too far or you will lose control. In deep water, or in water with some color, whichever combination does not allow you to see to the depth you are fishing, you can flip right under the rod tip, practically like vertical jigging. Flip farther in clear water, but no more than 10 to 15 feet from the rod tip.

Retrieving a jig under a bobber

Retrieving a jig under a bobber is an excellent method for shore fishing, or fishing from a boat when the tops of the weeds are at least a few feet beneath the surface. It is particularly useful immediately following ice-out and through spring while the aquatic weeds have not yet attained their full height. It is also useful over stump flats and sunken brush piles. This is controlled depth fishing more precise than any Great Lakes downrigger ever was. By adjusting the distance between the jig and the bobber, you can avoid snags and keep the jig constantly at the most productive depth.

During summer when the weed beds grow to the surface, shore anglers should look for areas where weeds are patchy, where you can cast into relatively deep water. Avoid those gently sloping areas where the weeds begin right at the shoreline. Try this method under boat docks, boat houses and other manmade structure.

Set the bobber so the jig is within inches of cover. Over weed beds, the jig should be deep enough so that it occasionally touches the tops of the tallest weeds. Adjust the bobber as often as conditions require, and be very quick to do so.

As with other serious sunfishing methods, a major objective is to get the rig in front of as many sunfish as possible. The jig moves ever so slowly, but it moves. Cast the rig so the jig moves close to as much cover as possible. Retrieve by reeling about

as slowly as you can reel. The bobber should barely make a wake.

One big advantage this method has over still fishing with a bobber, besides covering more water, is that the line is tighter, and on a lesser angle from the rod tip to the hook. This means you will hook more of the sunfish that strike.

Popping

One of the most entertaining fishing methods is popping for sunfish. The action is often fast, and often it catches the bigger sunfish in any given waterway. Usually it is done with fly-fishing gear, but it can be done, though not nearly so well, with ultralight spinning gear. If you try the latter tackle, use a long ultralight rod.

Popping works sometimes from spring through fall, but summer mornings and evenings are generally the best times. It becomes effective when weeds grow to within a foot of the surface. During summer when weeds have reached their full growth, fish poppers in the openings between the weeds.

Sunfish poppers, like other sunfish lures, must be tiny. Some really are not poppers if you define poppers by their cup-shaped front that makes the characteristic popping sound. Loud popping would scare most sunfish. For sunfish, poppers should be just slightly twitched. It can be done by wrapping the line between your fingers as you might do to retrieve a nymph for trout, but even more slowly, pausing a few seconds between twitches or series of twitches.

Perhaps the most difficult thing to learn about serious, aggressive sunfishing is patience, the ability to move a lure as slowly as natural sunfish food moves. Sometimes sunfish might eat small fish. More often, though, they dine on insects and zooplankton, tiny animals that might spend all day wandering through an area the size of a coffee cup.



a tour of the

LINESVILLE

Fish Culture Station

Before we start our tour, take this quiz.
Don't be discouraged. The question is easy.

True or False.

Q. *The Pennsylvania Fish and Boat Commission raises and stocks more trout than walleyes.*

A. *False. About five million adult trout and salmon are stocked each year. The number of walleye fry and fingerlings stocked is nearly 90 million!*

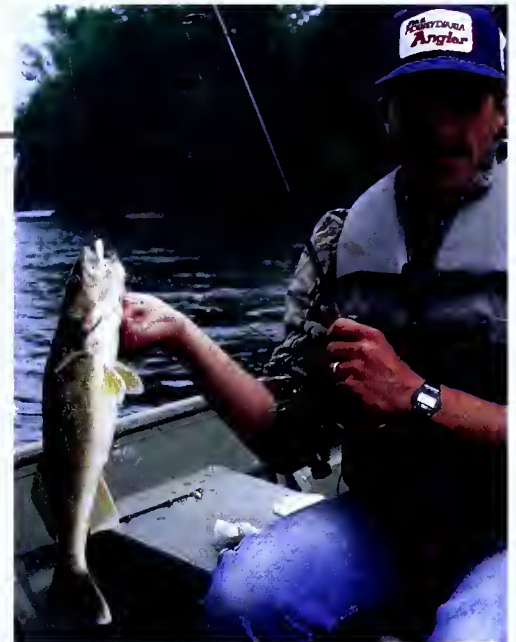
Most of the walleyes stocked by the Commission get their start at the Linesville Fish Culture Station. If they didn't, their ancestors probably did. Located on the shores of Pymatuning Reservoir Sanctuary in Crawford County, Linesville is the keystone in the Commission's walleye culture program. In fact, it is one of the premier walleye culture facilities in the United States. Even though most of the 90 million walleyes are stocked as fry or fingerlings, fish not much bigger than a pencil, the task

of stocking is still impressive. Walleyes aren't the only fish grown at Linesville. Species like muskellunge, tiger muskellunge, largemouth bass, panfish, smallmouth bass, striped bass hybrids, channel catfish, lake trout, coho salmon, brown trout, steelhead and paddlefish are also grown there. That is some kettle of fish!

Since these species all spawn at different times, the activities at Linesville follow a carefully choreographed schedule. Visitors to Linesville will find the hatchery loaded with walleyes in the early spring, paddlefish and largemouth bass in the summer and lake trout and steelhead in the fall and winter.

Why do we need to stock walleyes and other cool and warmwater fish?

These species are stocked where mother nature can't grow enough fish to support angling pressure. In the wild, only one in 10,000 walleye eggs hatches. Fewer than 10 percent of them make it to legal size. As a result, lots of spawning must take place to make enough legal-sized walleyes to keep anglers happy.

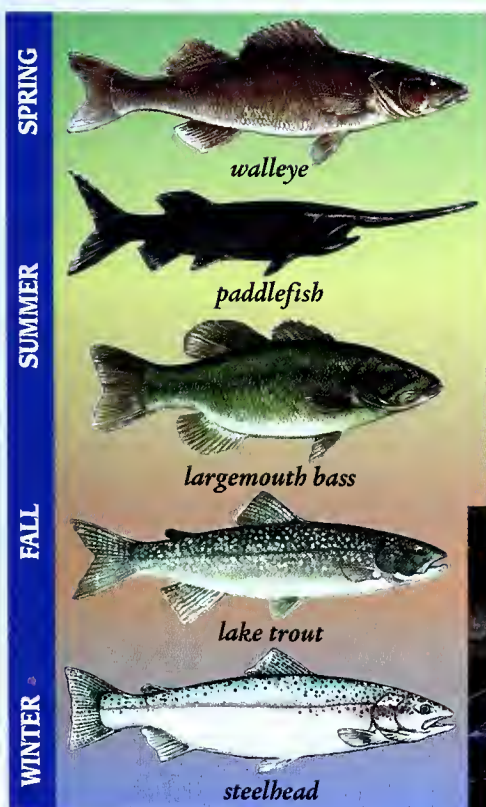


Each year, the Commission's fisheries managers conduct population estimates on many waters. They do this to determine if there are enough fish to support fishing. If not, then some stocking might be necessary.

The Commission uses these stockings to make fishing better. Maybe you have fished some waters that receive walleyes and other fish raised at Linesville. If you have caught a walleye in Pymatuning Reservoir, it probably got its start at Linesville. The major rivers of our state also receive stockings of walleyes and muskies from Linesville. Lake Erie and Raystown Lake also receive plantings from Linesville.

How are walleyes and other cool and warmwater species cultured?

Unlike trout, coolwater and warmwater fish are most often stocked as fry or fingerlings. There is one important reason why—these fish won't eat pellets as do adult trout. Young walleyes and muskies eat lots of baitfish on their way to adulthood. In addition, the warmer water temperatures they need are breeding grounds for diseases. More importantly, though, there is no real need to grow them to adults. Mother nature does a good job of that.



How do you make a walleye?

Shortly after ice-out, when water temperatures warm to 40 degrees, spawning males and females move to shallow gravel bars. At Linesville 8 to 10 trap nets are set in these locations. The spawning walleyes swim into the nets and are later collected. The adults are taken to the hatch house and sorted by sex. Fish that aren't ready to spawn are kept in



tanks where the water is slightly warmer. In two or three days, these fish are ready to go.

The fish are placed in tanks where a chemical anesthetic has been added. This chemical calms the fish and makes them easier to handle, which prevents injury to the fish and the fish culturist. The culturist gently squeezes the belly of the female and the eggs come out into a basin. The eggs are so small that a 16-ounce glass holds about 70,000 eggs. That's about the number of eggs produced by one female walleye.



The eggs are mixed with the sperm of two males. This ensures that the eggs are fertilized. The eggs and sperm are mixed by hand in the basin for two minutes. The contents of the basin are then dumped into a large bucket for the next step which is called "mucking." Mucking is the process where eggs are mixed with water and a refined clay solution and gently stirred with a turkey feather. Mucking is done to keep the eggs from clumping together. After mucking they are placed in a large keg, where they become hard and nearly double in size after one hour. Once hardened they are screened and placed in incubator jars or shipped to other facilities.

In any given year some 96 to 168 million walleye eggs will be collected and fertilized here. Most of that action takes place from March 20 to mid-April. About 50 million of those eggs are shipped

to other stations. The rest are hatched here at Linesville.

Fertilized eggs are packaged in plastic bags, loaded into cardboard boxes and shipped or trucked to their destinations. The adults that provided the eggs and sperm are then released back to the waters from which they were taken.

Egg Incubation

Eggs are placed in incubator jars that each holds about 560,000 eggs. Thirty-two jars are lined up on racks called batteries. Water of 50 degrees is constantly flushed through the jars. In about two weeks, eyes appear inside the eggs, what we call "eyed" eggs. After about 21 days in the jars, the walleyes begin to hatch. Within 3 to 7 days, all the eggs in a jar hatch and the young fry are flushed into a larger tank. At this point, the walleyes are little more than "two eyes and a wiggle." The fry are either stocked or transferred to ponds, where they grow into fingerlings.



For stocking, the fry are placed in plastic bags partially filled with water, and oxygen gas is put into the bags. Each bag is carefully packed into a box, which is then loaded onto a truck and taken to the stocking location. An average pickup truck can haul about 4.5 million walleye fry!

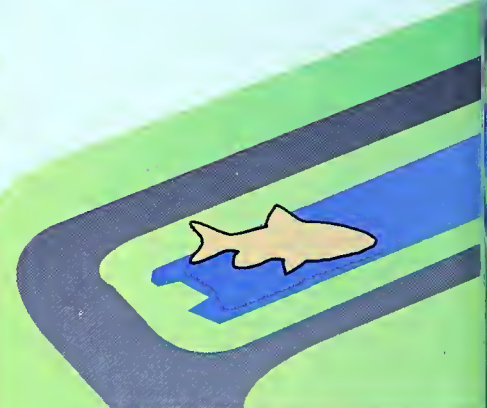
On average, about one million walleye fry are shipped to other stations, another 35 million are stocked from here and the rest go into the ponds.

Some fry are kept and grown to fingerling size. These fry are placed in the earthen ponds. There they feast on daphnia for 35 days and grow to fingerling size. Fingerlings are stocked from May or June, depending on when the eggs were fertilized. Of the 150,000 fry stocked per acre of pond, about 30,000 grow to fingerling size.

The entire process of taking a walleye from egg to fingerling stage takes about two months. After stocking, it will take another 3-5 years before that fish is big enough to keep.

Muskellunge, tiger muskies, and northern pike are produced in much the same way. The only difference is what they are fed. In the wild fry of northerns and musky eat fish and small insects. At the hatchery they are fed fathead minnows and some are fed a specially prepared moist feed.

A walk around THE LINESVILLE Fish Culture Station



Pymatuning Sanctuary

Linesville Fish Culture Station overlooks the 2,500-acre Pymatuning Sanctuary, which is closed to fishing. Fish from the sanctuary waters serve as what fish culturists call brood stock—the fish that provide eggs and sperm. They are collected from the sanctuary just before they spawn, and returned to the sanctuary after eggs have been extracted and fertilized.

The procession of spawning fish begins just around ice-out. Northern pike arrive first, followed by walleyes and muskies. Spawning urges draw these fish to suitable spawning habitats. Awaiting their arrival are trap nets. The fish collect in the nets and each day they are transported back to the hatch house for spawning. In May, bass and panfish fry are collected from nests in the sanctuary. These fry are then stocked, or kept and grown to fingerling size.



Culture ponds

Scattered around the grounds are 60 earthen culture ponds ranging from 1/8 to 60 acres. A few of the ponds are used to raise food for the gamefish cultured at the station. Others are used to grow largemouth bass and walleye fry.

Aeration system

The station uses water pumped from the sanctuary and wells. Here, water temperature, dissolved oxygen, pH and turbidity are monitored. Well water is mixed with lake water to maintain constant water temperatures in the hatchery. Before entering the system, the water is aerated or oxygen is added. On average some 1,500 gallons per minute of lake water and 450 gallons per minute of well water are pumped through the system. From here, gravity directs the water to the hatch house and rearing ponds.

Silos and Raceways

Just over the hill, near the aeration system, are three large "silos" that resemble those found on farms. But these silos don't contain grain—they each hold about 25,000 steelhead fingerlings. These fingerlings are stocked in Lake Erie tributaries.

Steelhead are also raised in several concrete raceways near the silos, and can be found there nearly year-round. During the summer, several raceways hold musky and tiger musky fingerlings. In the fall and winter, those raceways are used to culture daphnia and hold fathead minnows.

Hatchery/visitor center

This is the hub of activity at Linesville. Here is where walleyes and musky brood stock are sorted, eggs collected and fertilized, incubated and fry grown. Largemouth bass fry and paddlefish fry are grown in large circular tanks located here. Since lake trout fry are sensitive to light, they too are grown here inside the building. It is also a place where visitors can learn a little more about the operation at Linesville—and get a close look at its occupants.



PYMATUNING LAKE



THE LINESVILLE Fish Culture Station



Hatchery visitor center

The center is open year-round, seven days a week from 7:30 a.m. to 3:30 p.m. Visitors can watch a video on the station operation or browse through the exhibit area. During the summer visitors can check out the fish in the large viewing tank. Tours of the hatchery are offered from March to September. Contact the Linesville Fish Culture Station visitor center for more information.

Even though there are fish at the station year-round, spring is the best time to visit Linesville. At this time walleyes and muskellunge are spawned and there are lots of things to see. Each year around this time Linesville hosts an open house. Open house visitors can view a variety of exhibits and demonstrations. Contact the visitor center for information.

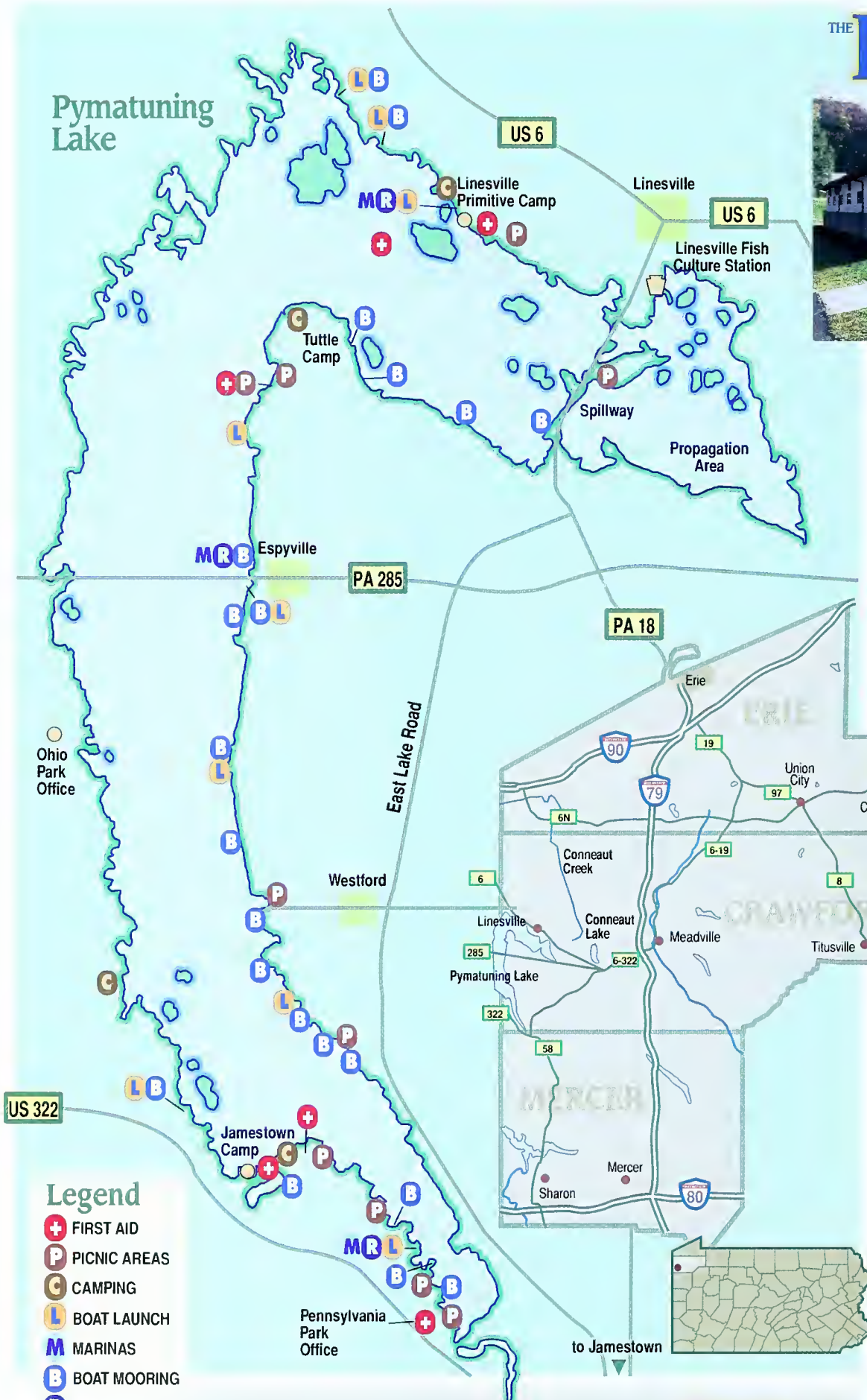
Directions

East

From the intersection of I-80 and I-79, go north on I-79 to exit 36 at Meadville. Take St. Rt. 322/6 west to Conneaut Lake. Take St. Rt. 6 west to Linesville. Turn left at the traffic light in the center of town (Linesville/Hartstown Rd). The hatchery is approximately two miles from this intersection, on the left hand side of the road.

West

Visitors arriving from the west can also follow St. Rt. 6 (in Ohio) to Ohio St. Rt. 85. This road goes over the causeway of Pymatuning Reservoir and turns into PA 285 at the state line in the middle of the lake. Stay on St. Rt. 285 until reaching the flashing light at Linesville/Hartstown Rd. Turn right, which will take you past the spillway and Pymatuning visitor center. The hatchery is on the left approximately one mile.



For More Information

Pennsylvania Fish & Boat Commission:

Linesville Fish Culture Station 814-683-4451

NW Region Law Enforcement Office 814-437-5774



SMART

Angler's Notebook

by Carl Richardson

illustrated by Ted Walke



black-nose dace

YOUR CHECKLIST

MATERIALS NEEDED:

- ☐ Swivel
- ☐ Minnow needle
- ☐ Live, salted or preserved minnow
- ☐ Treble or double hook
- ☐ Several feet of fishing line

How to Rig a Minnow

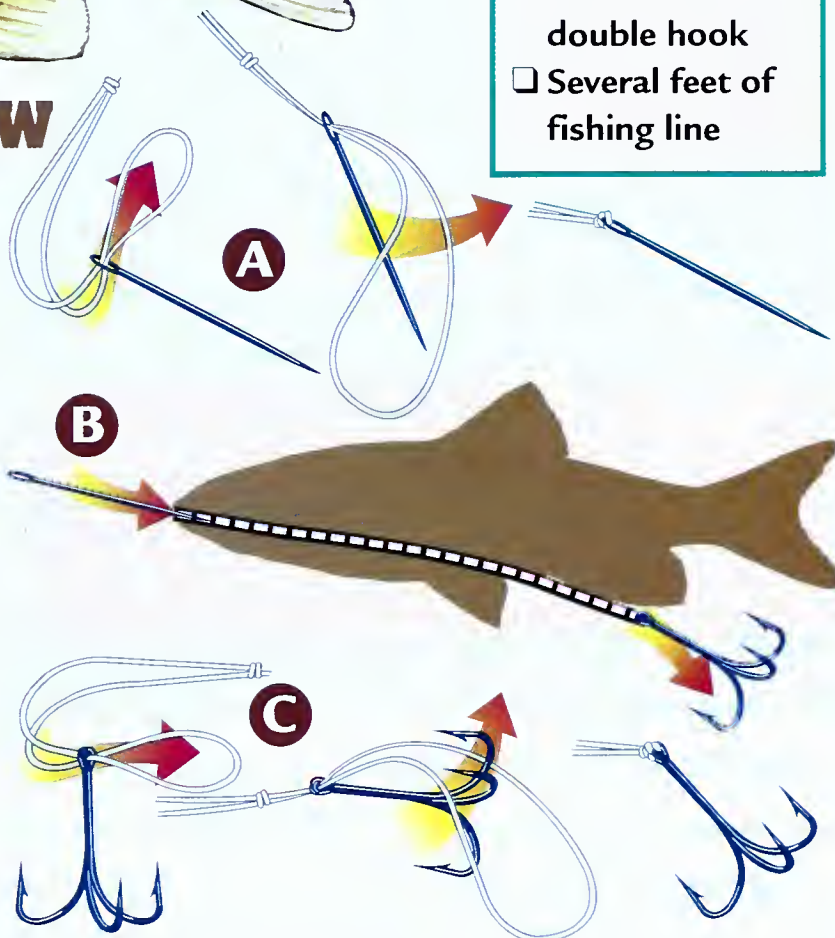
RIGGING

Attach a swivel to the end of your line. Attach a length of line to the other end of the swivel. The length and diameter of this line varies with fishing conditions. In low or clear water, make it long (about 2 feet) and use a smaller diameter than the running line. If water is high or muddy use the same or larger diameter line and a shorter piece of leader. Tie a surgeon's knot or perfection loop on the end of the line. The loop needs to be big enough so the hook will pass through it. Attach the minnow needle (sewing needle with open eye) to the loop and thread the needle down through the minnow's mouth and out the vent. Pull the line through the minnow. Thread the loop through the eye of the treble or double hook and slip the loop over the end of the hook. Pull the line tight on the hook. Pull the line out of the minnow's mouth, drawing the hook up to the body. The hook should be tight against the body, near the anal fin. Add splitshot to keep the bait near the bottom.

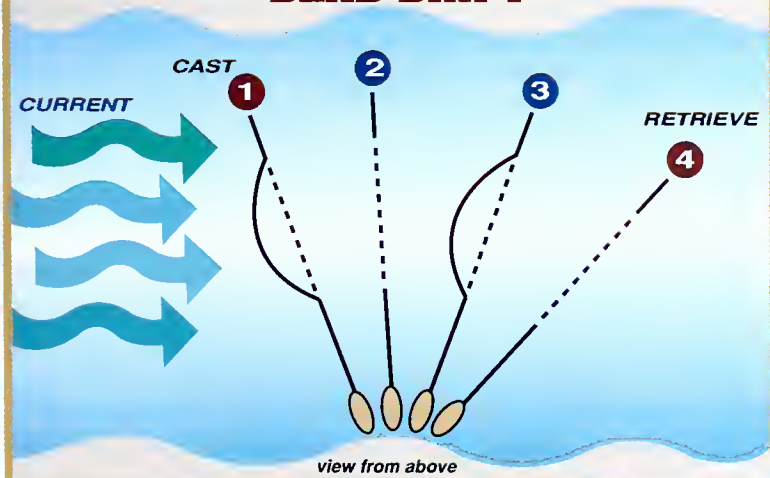
FISHING TECHNIQUE

Dead drift: Cast upstream into the current. Allow the fish to drift along the bottom with little or no retrieve. Keep the rod tip high. When the bait is directly downstream, begin a slow retrieve. Often fish will follow and hit when the bait begins to move upstream.

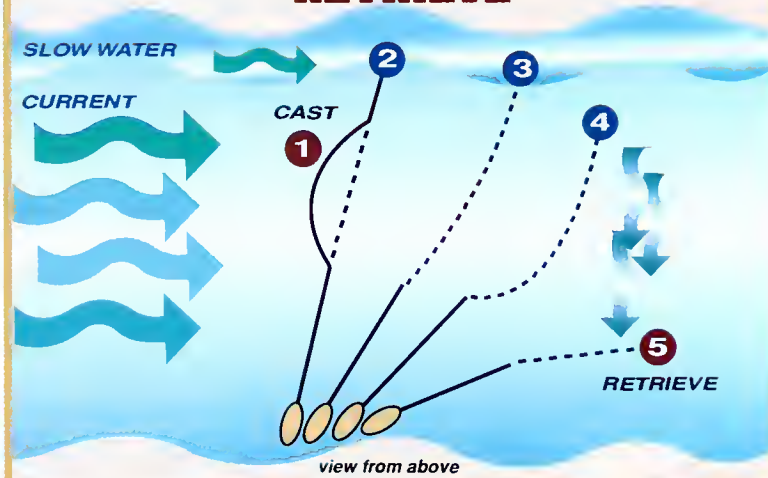
Retrieve: Fish as you would work a spinner, casting upstream or into likely looking spots. Begin a slow retrieve. The bait can be twitched on the retrieve.



DEAD DRIFT



RETRIEVE



Get Ready!
Opening Day
for Trout
is
April 12th

CHOOSING an Opening Day Stream

by
Robert L. Petri

If you are among the many opening day anglers who measure the quality of your opening day experience by how good the fishing is, there are many factors from stream size to species of trout stocked to angling pressure to consider in making your choice of destination. Taking a good look at these factors singly or in combination can get you off on the right foot to being a smart and successful opening day angler.

When you choose your opening day destination, pay particular attention to stream size. It can make or break your day. The wider, more open valleys that cradle our larger approved trout waters tend to have less direct shade during the course of the typical mid-April day. This allows more of the warming rays of the sun to reach the water and raise the temperature of the stream. During April, most Pennsylvania trout stream water temperatures hover in the low to mid-40s. This is just about the generally accepted point where trout begin to feed actively. There can be drastic differences in the activity level of trout in a valley

stream that is running at 45 degrees and a mountain stream that is holding at 40. And in the generally cold waters of April, these higher water temperatures often mean more active trout that have a greater interest in your bait, lure or fly. So a larger valley stream is often a better opening day bet than one that is small and densely shaded, and hence does not warm as rapidly.

Larger streams get that way by receiving the flows from smaller ones. This is also a factor you should take into consideration. After spring rains, they are the last waters to return to fishable levels because of the larger areas they drain and their generally more gentle gradients. Having a few extra degrees of water temperature won't improve your fishing if your chosen stream is running up against the guard rails.

In times of high water, it's a good idea to seek out a stream of more moderate size. It will likely still be open enough to benefit from the warming influence

of the sun, and it will often be in better condition in terms of level and water clarity than the big valley streams.

Our smaller stocked waterways have their opening day virtues as well. Usually they are less pressured by anglers. They tend to be more difficult to fish because of the tight quarters they often offer with overhanging brush and other obstacles. And as previously mentioned, they are usually the first streams to clear after spring rains have swept through the area. I have had a number of opening days saved by turning to these smaller runs and creeks when the bigger streams were bank-full and dirty.

Trout species

The species of trout stocked in Pennsylvania streams differ in their reactions



to water temperatures and all the commotion caused by the usual crowds of opening day. Learning how each species reacts and planning your destinations accordingly is another way to make your opener more successful.

Brook trout seem the least troubled by low water temperatures and wading fishermen. I have had a number of opening day experiences in streams where stocked brookies hit well at water temperatures of 40 degrees and below. And for the most part, they do not seem to mind the bankside angler traffic all that much.

Brown trout, on the other hand, are more likely to be spooked by wading fishermen. They often sulk under a log until the commotion subsides. They also seem to be more affected by very cold water temperatures, and will often not hit or chase a lure or fly in water under 45 degrees.

Stocked rainbows seem to occupy the center ground on both counts. They are less likely to be spooked by passing anglers than browns, but more so than brook trout. And in streams where all three species are stocked, they seem to begin to feed before the browns, but after the brookies as the water temperature rises.

One way to put these differences to practical use in choosing your opening day stream is to pay close attention to the detail of pre-season stocking notices. You may want to spend opening morning when the water is coldest and the crowds at their peak for the day on a stream stocked with brookies. Then as the sun warms the water and the crowds begin to thin in the afternoon, you may want to move to a stream stocked with rainbows and browns.

Ideally, everyone wants a place of his own on opening day. Somewhere one can match wits with the trout without having to match wits and jockey for position with an army of fishermen. And while there is no day during the trout season when you are less likely to have this wish come true, there are ways to choose your opening day destination to minimize the amount of anglers you will be competing with.

Stocking statistics

Take out that pre-season stocking list again and check for streams where fewer rather than more fish have been stocked. Pennsylvania Fish & Boat Commission stocking formulas for approved trout waters are based on a number of factors from stream size to available mileage of water open to public access to biological factors like the presence of wild trout popu-

lations. Usually, when a stream receives fewer fish in its pre-season allotment, the number of trout available to anglers in the stocked sections is pretty close to that found in streams stocked with larger numbers of trout, and it is really quite difficult to tell the difference. These streams generally draw fewer opening day anglers because, well, "They didn't put that many fish here."

Of course, the reason for lower stocking rates sometimes has to do with an access situation that is precarious. Some of the waterways in this category flow for the most part through privately held lands. So always use discretion, exercise good manners and be a courteous angler when on these streams. Pay attention to areas that the landowner does not want you entering, and do not litter or block driveways. Tomorrow's access depends on today's good manners.

Special reg areas

If you do not mind going home at the end of the day with nothing but memories and perhaps a few photographs, one of our many special regulation areas may be where you want to spend opening day. You'll find much lower pressure than on most of our stocked streams and there are lots of fish. Even though there are many types of special reg areas to choose from, the most readily available to the majority of Pennsylvania trout fishermen are our wide array of Delayed-Harvest areas. The Delayed-Harvest, Artificial-Lures-Only program is constantly having more stream sections added to it, and it is rapidly nearing the point where one of these projects is little more than an hour's drive from wherever you are in Pennsylvania.

During the period from opening day until June 15, all trout caught in Delayed-Harvest areas must be returned to the water. So if having trout for supper is not all that important to you, and avoiding major crowds is, you may want to try a Delayed-Harvest area on opening day. If you hit it right, you can catch fish after fish, and as often as not, there may not be another soul in sight to see it.

There are other ways to beat the crowds if this is your aim. A growing number



of Pennsylvania trout streams are benefiting from float stocking programs conducted by the Fish & Boat Commission with the aid of local sportmen's organizations. Float stocking transports good numbers of trout into stream sections where access is a little more difficult. Float stocking also helps spread a stream's fish allotment out over a longer section of water. Knowing which sections of which streams in your

area are float stocked and then taking the time to walk into these more isolated areas is a good way to improve your opening day success. The fish here will generally be less disturbed, and more likely to feed instead of spending the day in hiding.

Anglers with a penchant for big fish may want to consider opening the season on one of the Lake Erie tributaries. The spring steelhead run is usually still fairly strong when opening day comes along, and this may be the only place in Pennsylvania where you can meet another angler on the water and say with a straight face that your luck has only been fair because you didn't catch a single fish over five pounds!

Some of the Lake Erie tribs are also approved trout water. Elk Creek, Crooked Creek, Cascade Creek and 20 Mile Creek all receive pre-season stockings of catchable-size brown trout. Opening day pressure on these waters can be pretty intense, but the opportunity for the trout of a lifetime is very real here. That *tap-tap* on your line may be yet another 10-inch brown courtesy of the hatchery truck. Then again, it could be 25 inches of steelhead ready to bolt for Mexico as soon as you set the hook.

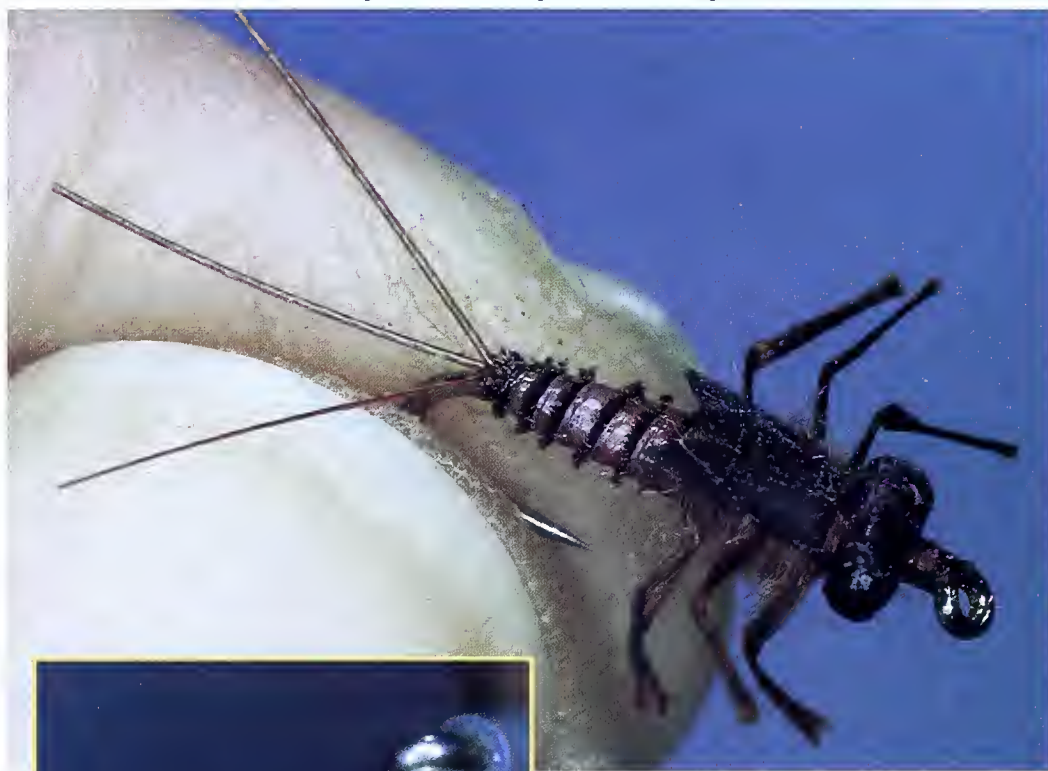
You can even get a little crowd relief on the Lake Erie tribs by targeting streams that are not part of the hatchery program. Waters like Walnut Creek, 16 Mile Creek and several others are not stocked with trout but still have their share of steelhead in residence on opening day.

Your choice of an opening day destination is a very subjective and personal thing. Whatever you decide, and for whatever reasons you make your choice, celebrate and enjoy this wonderful annual rite of spring. It's just too good to miss.



A Turkey Biot Nymph

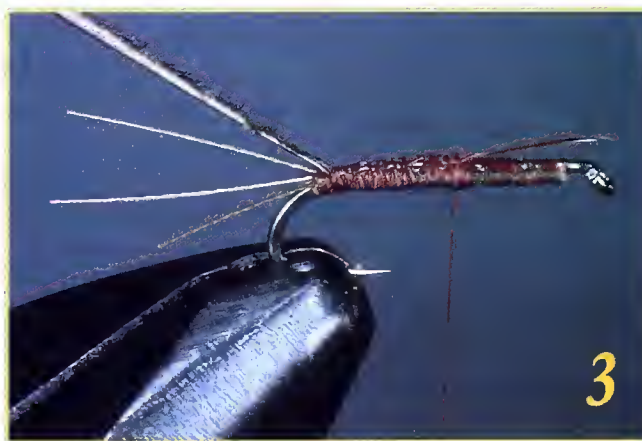
by Chauncy K. Lively



1. Tie in the thread behind the eye and wind closely over the underbody to the bend.



2. Select three brown hackles and strip off the barbules. At the bend tie in the three stripped ribs together, with butts toward the eye. Wind between the ribs to separate. Then trim the ribs to a tail length equal to the shank length. Wind the thread over the ribs to the mid-shank and trim the excess ribs.



3. Tie in the biot by its tip and wind over it back to the bend. Wind the thread forward to the mid-shank and trim the excess biot.

Mayfly nymphs typically have flattish, tapering abdomens divided into 10 visible segments. Delicate gill filaments—in some species resembling feathery appendages, while in others, flat plates—extend outward along the abdomen's sides. Some nymphs have flatter bodies than others but virtually all create the illusion of flatness because of the gills along the sides.

Fly tiers represent the prominent body segments in various ways. Perhaps the most common nymph bodies are dressed with fur dubbing and ribbed with thread or fine wire. In these flies the ribbing should be wound counterclockwise; otherwise, the fine rib is apt to be buried in the fur and concealed.

My favorite materials for nymph abdomens are single fibers, often called quill fibers or biots, from the wing primaries of large birds. When tied in by their tips and wound forward in abutting (but non-overlapping turns) the segments increase in width toward the thorax as in real nymphs. The flue along the biot's edge defines the segments and suggests feathery gills.

Many years ago I used condor quill fibers for this purpose and they produced unusually lifelike bodies for mayfly nymph patterns. However, condors were eventually declared an endangered species, and their feathers were no longer available. I turned to goose primaries and found them a fair substitute, although the broad part of the fibers

was shorter than I liked, limiting their use to small and medium-sized patterns. Then, a few years ago Cabela's began listing turkey biots in their catalog.

I first experimented with turkey biots two years ago and they showed promise as nymph body material. They are longer than goose biots, making possible their use in larger flies. If fact, when two biots are tied in and wound together, the dressing of large nymphs is possible. To enhance durability I always coat the underbody with Flexament (or other tough lacquer) and wind the biot over the wet surface.

Turkey biots are available in a num-

ber of dyed colors, but if you need a special shade, any pale hue may be tinted to suit with a permanent marking pen. The new color should be applied to the biot before it is dressed.

Tails for nymph patterns cover a broad spectrum and the choices are many. Nymphs require no tail support, as do many dry flies, so tail materials may be selected according to the whims of the tier. I used to use barred wood duck feather fibers often because they resembled the tails of many mayfly nymphs. The reddish-brown fibers from a ringneck pheasant tail were similarly used for their realism. But realistic as these tails were, they failed miserably in longevity. The punishment of being tossed sharply through the air and chomped upon in the water by sharp-toothed trout was too much for the delicate feather fibers.

I would check my nymph box after a day's fishing and any nymphs without tails were tossed into a box labeled "FOR REPAIR." I worked out an unobtrusive way to replace the missing tails with tails of stripped hackle ribs, and I found that the replacement tails were virtually indestructible. I soon got the message and stripped hackle ribs became my nymph tails of choice. The fine ribs of smallish hackles are best because of their suppleness. However, even heavier ribs become soft after immersion in water.

Most tiers represent legs on nymphs by some means or another. Probably the most common is the use of a single hen hackle with soft barbules, wound sparsely at the head of the fly. A variation of this approach uses a pinch of barbules as a

throat, or two such bunches bound along the sides of the head. Partridge hackle is also a popular choice for legs. England's Frank Sawyer omitted legs on his nymphs, contending that they hindered quick sinking.

Perhaps it's just an idiosyncrasy of mine, but to me a nymph without legs appears incomplete. I've been tying and fishing legged nymphs for many years with much success and I can't help but believe that legs make a contribution to a pattern's realism.

In the Turkey Biot Nymph I use kevlar thread for legs. I first cut a length of thread from the spool, apply a tiny drop of Flexament to one end and spread it along the length between the fingertips. The latter procedure prevents the multi-fibered thread from fraying. Then I cut three pieces of thread, each the overall length of the hook, and bind them equally spaced over the thorax area.

The prominent eyes are formed by holding a 3/8-inch length of heavy (.026-inch to .028-inch) monofil at mid-point with tweezers and applying heat to the ends with a match or lighter. The application of heat melts the monofil, forming a ball at each end. The finished unit resembles a tiny barbell. The small size of the eye unit makes it difficult to handle with the fingers. If it poses a problem, grasp it with fine tweezers and set it on the hook with a drop of instant-

bonding glue. Then bind it with criss-cross turns. The monofil may be either dyed black or tinted with a marking pen.

The Turkey Biot Nymph is a generic pattern. That is, it serves to represent a variety of mayfly nymphs. It follows the shape and profile of such familiar genera as *Stenonema*, *Stenacron*, *Ephemerella* and others, embracing nymphs of the March Brown, Gray Fox, Cahill, Hendrickson, Sulphur and Blue-Winged Olive. Only slight variations in size and color need be made to accommodate many common hatches. This simplifies our fly inventory and reduces the number of separate patterns many of us feel compelled to carry.

Dressing: Turkey Biot Nymph

Hook: Size 14, 3XL (Tiemco #5262 or comparable).

Thread: Brown 6/0 prewaxed.

Underbody: .021-inch monofil strips cemented to the sides of the shank and tapered in the rear.

Abdomen: Brown turkey biot.

Legs: Brown kevlar thread.

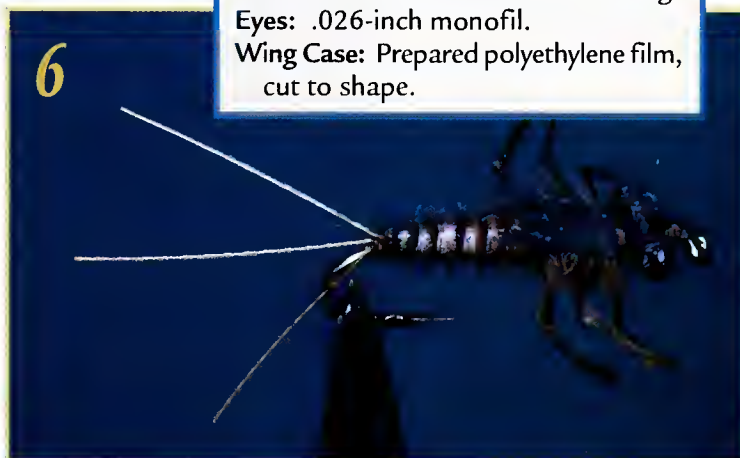
Thorax: Medium-brown fur dubbing.

Eyes: .026-inch monofil.

Wing Case: Prepared polyethylene film, cut to shape.



4. Coat the underbody top and bottom with Flexament and wind the biot forward to the thorax area. Trim the excess. Bind the kevlar legs over the thorax as shown. Bind the monofil eyes in front.



6. Lay the wing case over the thorax and bind it with two turns behind the eyes. Pull the wing case tip forward and tie off in front of the eyes. Trim the excess, whip-finish the thread and apply head lacquer. Optionally, leg joints may be bent with tweezers to finish the Turkey Biot Nymph.



5. Dub the thorax to the eyes. Prepare a small sheet of polyethylene film by sanding both sides and tinting with a dark-gray marker. Then cut a wing case as shown in tweezers.



MEMORIES, MUGS AND COLLECTORS' ITEMS

FROM THE PENNSYLVANIA FISH & BOAT COMMISSION



"75 YEARS OF FISHING AND BOATING MEMORIES" MUG

Mugs can hold cold or hot liquids, including 12-ounce cans. The bottom can be removed to fill the sides with ice.

1997 FISHING MEMORIES PATCH

This is a limited edition item. Only 7,500 have been made. Purchase limited to five per person.



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This is a limited edition item and each is serially numbered.



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Item	Unit Price	Tax (PA residents only)	Total Unit	Quantity	Amount Ordered
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WHILE SUPPLIES LAST!



PENNSYLVANIA'S 1997 APPROVED TROUT WATERS INSEASON STOCKING

Beginning the Monday after opening day, more than two million legal-sized trout will be shipped from Pennsylvania Fish & Boat Commission hatcheries and cooperative rearing facilities to restock most of the Commonwealth's trout waters.

To improve landowner/sportsmen relations and to provide increased opportunity for anglers who have limited time to fish, the Commission is announcing inseason stockings by week only. (No Fish & Boat Commission employee is permitted to release information about the exact date, time or number of fish to be stocked after opening day.)

This listing provides information on the names of streams and lakes in each county scheduled for inseason stocking and the week(s) during which they will be stocked. Because of conditions beyond the Commission's control (weather, pollutions, postings, mechanical failures in stocking trucks, etc.), last-minute changes in stocking schedules may occur. In such instances, the district waterways conservation officer will attempt, when possible, to notify the local media of these changes. However, if the changes occur after local media deadlines or the officer is committed to other assignments, notice of the changes may not occur.

Waterway *Week of*

Adams County

Antietam Ck, E Br 5/5, 5/19, 5/26, 9/29
Bermudian Ck 4/14
Carbaugh Rn 5/5
Conewago Ck 4/21, 10/6
Conococheague Ck 4/14, 4/21, 4/28, 9/29
Latimore Ck 4/21
Marsh Ck 4/28
Marsh Ck, Ltl 4/28
Middle Ck 4/28
Opossum Ck 5/12
Toms Ck 4/14
Waynesboro Water Co Rs 5/12, 5/19

Allegheny County

Bull Ck 4/14, 4/21, 5/5
Deer Ck 4/21, 5/5, 5/19, 6/2, 10/6
Deer Lks 5/28*, 5/5, 5/12*, 10/6
North Park Lk 4/14, 4/21, 4/28*, 5/5*, 5/12, 11/3, 2/16/98
Pine Cr 4/21, 4/28, 5/5, 10/6
Sewickley Ck, Bg 4/14, 4/28, 5/12

Armstrong County

Buffalo Ck 4/14, 4/21, 4/28, 5/5, 5/19, 10/6
Cherry Rn 4/21, 5/12, 5/19, 10/6
Cornplanter Rn 5/5
Cowanshannock Ck 4/14, 4/21, 5/5
Glade Rn 4/28, 5/12, 5/19
Patterson Ck 4/21
Pine Ck, S Fk 5/12
Plum Ck 5/19
Scrubgrass Ck 4/28

Beaver County

Beaver R, Ltl, N Fk 4/14, 4/21
Brady Rn Lk 4/14*, 4/28*, 5/5, 5/12, 10/6, 1/12/98
Brady Rn, S Br 4/14, 5/5, 5/12, 10/6
Hereford Manor Lk, Lw 4/21*, 4/28, 5/5*, 5/19, 10/6, 1/12/98
Hereford Manor Lk, Up 4/21*, 5/5*, 1/12/98
Mill Ck 4/21
Raccoon Lk 4/21*, 5/5*, 5/12, 5/26, 10/6, 11/10, 2/16/98
Sewickley Ck, Bg, N Fk 4/14, 4/28, 5/12
Traverse Ck 4/14, 5/5, 5/12, 5/26, 10/6

Waterway *Week of*

Bedford County

Beaver Ck 5/26
Bobs Ck 5/19
Clear Ck 5/12
Cove Ck 4/21, 5/12
Evitts Ck 4/28
Gladdens Rn 5/12
Juniata R, Raystown Br 4/21, 5/5
Maple Rn 5/26
Sherman Valley Rn 5/26
Three Springs Ck 5/26
Town Ck 4/14, 4/28
Wills Ck 4/21, 5/19
Wills Ck, Ltl 5/12
Yellow Ck 5/12, 9/29

Berks County

Allegheny Ck 4/14
Angelica Lk 4/14*, 2/23/98
Antietam Ck 4/14, 5/5, 9/29
Antietam Lk 4/21, 4/28, 5/5, 9/29, 12/15, 2/23/98
Furnace Ck 4/14, 4/21
Hay Ck 4/14, 4/28, 5/5, 10/6
Kistler Ck 4/21
Maiden Ck 4/21
Manatawny Ck 4/21, 5/12
Mill Ck 5/5, 5/12, 5/19
Moselem Ck 4/21, 5/12
Northkill Ck 5/19
Ontelaunee Ck 4/21
Perkiomen Ck 4/14, 5/5
Pine Ck 4/21
Sacony Ck 4/28, 5/5
Scotts Run Lk 4/21, 4/28, 5/5, 10/6, 12/8, 2/16/98

Spring Ck 4/21, 4/28
Swamp Ck 4/21
Swatara Ck, Ltl 5/19
Tulpehocken Ck 5/5, 5/19

Blair County

Bald Eagle Ck 4/21, 4/28
Beaverdam Ck 4/14, 4/28
Bells Gap Rn 4/21, 4/28
Blair Gap Rn 4/21, 4/28
Bobs Ck 5/19

Waterway *Week of*

Canoe Ck 4/21, 4/28, 5/12, 5/19
Canoe Lk 4/14*, 4/28*, 5/12, 10/6, 12/15, 2/16/98
Clover Ck 5/5
Juniata R, Frankstown Br 4/21, 4/28
Poplar Rn 4/14
Poplar Rn, S 4/14
Vanscoyoc Rn 4/21

Bradford County

Millstone Ck 5/5
Schrader Ck 5/5, 5/19
Sugar Ck 4/21
Sugar Rn 4/14
Sugar Run Ck 4/14
Sunfish Pd 4/21, 4/28, 5/5, 5/26, 10/6
Towanda Ck 4/21
Towanda Ck, S Br 4/21
Tuscarora Ck 4/14
Wysox Ck 4/28

Bucks County

Lake Luxembourg 4/14, 4/21, 5/5, 10/6, 12/8, 2/16/98
Levittown Lk 4/14*, 4/28*, 5/5*, 10/6, 12/8, 2/16/98
Neshaminy Ck 4/14, 4/21, 5/5
Perkiomen Ck, E Br 4/14, 4/21, 5/5, 10/13
Tohickon Ck 4/14, 4/28
Unami Ck 4/14, 5/5

Butler County

Bear Ck 5/5
Buffalo Ck 4/14, 4/21, 4/28, 5/5, 5/19, 10/6
Buffalo Rn, Ltl 4/28
Connoquenessing Ck 5/19
Connoquenessing Ck, Ltl 4/14, 5/5
Glade Run Lk 4/21, 4/28*, 5/12*, 1/5/98
Harbor Acres Lk 5/5, 10/6, 1/12/98
McMurray Rn 4/14
Silver Ck 5/5
Slippery Rock Ck 4/14, 5/12, 10/6
Slippery Rock Ck, N Br 4/28
Thorn Ck 4/21, 5/5

* = Saturday stocking. See separate listing on page 7.

<i>Waterway</i>	<i>Week of</i>	<i>Waterway</i>	<i>Week of</i>	<i>Waterway</i>	<i>Week of</i>
Cambria County		Chester County		Clinton County	
Beaverdam Rn	5/5	Cold Stream	5/12	Baker Rn	4/21
Bens Ck	4/14, 5/5	Fishing Ck, Ltl	5/5	Cooks Rn	5/5
Blacklick Ck, N Br	4/14, 4/21	Marsh Ck	4/21	Fishing Ck	4/14, 4/28, 10/6
Chest Ck	4/14, 5/12, 10/6	Mountain Br	5/12	Fishing Ck, Ltl	5/5
Conemaugh R,		Penns Ck	4/14	Hyner Rn	4/21
Ltl, N Br	4/21, 5/5	Pine Ck	4/28, 5/5, 5/19, 6/2	Hyner Rn, Lf Br	4/21
Duman Dm	4/14*, 4/28*, 5/19,	Poe Ck	4/14, 5/5, 10/6	Hyner Rn, Rt Br	4/21, 4/28, 5/5
	12/15, 2/16/98	Poe Lk	4/21*, 5/5*, 5/19,	Kettle Ck	4/14, 4/21, 5/5, 5/12
Elton Sportsmens Dm	4/28, 5/5		6/2, 10/6, 11/10	Kettle Ck Lk	4/14*, 4/28*, 5/12*,
Hinckston Rn	5/5, 5/19	Sinking Ck	4/14		10/6, 12/8, 2/16/98
Howells Rn	4/14, 4/28	Sixmile Rn	4/21, 4/28, 5/12, 6/2	Long Rn	4/28
Killbuck Rn	4/28, 5/5	White Deer Ck	4/28	Rauchtown Ck	4/14, 4/28
Killbuck Rn, Ltl	5/5	Clarion County		Young Womans	
Laurel Lick Rn	4/28, 5/19	Beaver Ck	4/14, 5/5	Ck, L Br	4/28, 5/5, 5/19, 6/2
Laurel Rn	4/28, 5/5, 5/19	Brandywine Ck, E Br	4/14, 5/5	Columbia County	
Lake Rowena	4/14*, 4/28*, 5/19,	Brandywine Ck, W Br	4/14, 5/5, 5/12	Beaver Rn	4/21
	10/6, 12/15, 2/16/98	Buck Rn	4/14	Briar Creek Lk	4/28*, 5/5*, 5/12*,
Noels Ck	5/5	Elk Ck, Bg	4/21		10/6, 11/3, 2/16/98
Paint Ck, Ltl	4/28, 5/5	Elk Ck, E Br	4/21	Fishing Ck	4/21, 5/5, 5/12, 5/19, 10/6
Slate Lick Rn	5/5	French Ck	4/28, 5/19, 10/6	Fishing Ck, Ltl	5/12
Stewart Rn	4/14, 4/28	Octoraro Ck, E Br	4/21, 5/5	Roaring Ck	5/5, 5/26
Cameron County		Pickering Ck	4/21, 5/5, 9/29	Scotch Rn	4/21
Brooks Rn	4/21, 5/5, 5/12	Pocopson Ck	4/14, 5/5	West Ck	5/12
George B. Stevenson Rs	4/21*, 5/5*, 5/19*,	Valley Ck, W	4/14, 5/5, 9/29	Crawford County	
	10/6, 12/8, 2/16/98	White Clay Ck	4/28, 5/5, 5/12	Caldwell Ck	4/28, 5/12, 10/6
Hicks Rn, E Br	4/21, 5/19, 5/26	White Clay Ck, E Br	4/28, 5/5, 5/12	Conneaut Ck	4/21
Hicks Rn, W Br	5/19	White Clay Ck, Md Br	4/28, 5/5, 10/6	Five Mile Ck	5/10
Jerry Rn, Up	5/5	Clearfield County		McLaughlin Ck	5/26
Mix Rn	4/21, 5/19, 5/26	Beaver Ck	4/14	Muddy Ck	5/19
North Ck	5/12	Canoe Ck	4/21	Oil Ck	6/2
Sinnemahoning Ck,		Cathers Rn	4/28	Oil Ck, E Br	5/19
Driftwood Br	4/14, 4/21, 5/5, 10/6	East Sandy Ck	4/21	Pine Ck	5/12, 6/2
Sinnemahoning Ck,		Leatherwood Ck	4/28	Sugar Ck	5/19
First Fk	4/21, 5/12	Mill Ck	4/14, 4/28, 5/19	Sugar Ck, Ltl	4/28
Sinnemahoning-		Piney Ck	5/19	Thompson Ck	5/26
Portage Ck	4/28	Toms Rn	4/21, 4/28, 5/12,	Woodcock Ck	4/14, 10/6
West Ck	4/14, 5/12		5/19, 6/2, 10/6	Cumberland County	
Wykoff Rn	5/5	Turkey Rn	4/14	Big Spring Ck	4/14, 4/21, 9/29
Carbon County		Clinton County		Childrens Lk	4/28*, 5/5*
Aquashicola Ck	4/21, 4/28, 5/5	Anderson Ck	4/28, 5/19	Doubling Gap Lk	4/14*, 4/21*
Bear Ck, Bg	4/14	Beaver Rn	5/12	Green Spring Ck	4/28, 9/29
Buckwha Ck	4/28, 5/19	Beech Rn	5/19	Laurel Lk	4/28*, 5/5*, 5/12*, 5/19*,
Drakes Ck	4/14	Chest Ck	5/12		9/29, 12/15, 2/23/98
Fourth Rn	4/14	Clearfield Ck, Ltl	4/21, 5/5, 5/12, 10/6	Middle Spring Ck	4/14, 4/28
Hunter Ck	4/14	Curry Rn	5/12	Mountain Ck	4/28, 5/5, 5/12, 5/19, 9/29
Lehigh Canal	4/14, 4/28, 10/6	Cush Ck	4/28	Old Town Rn	4/28
Lehigh R	5/5, 5/19	Goss Run Dm	4/28*, 5/12*	Opossum Ck Lk	4/14*, 4/21*, 4/28*,
Lizard Ck	5/12	Hockenberry Rn	5/5		9/29, 12/15, 2/23/98
Mahoning Ck	4/14, 4/28, 5/19	Jack Dent Br	4/14, 5/5, 5/19	Yellow Breeches Ck	4/14, 4/21, 5/5, 5/19
Mauch Chunk Ck	4/28, 5/19	Janesville Dm	4/28*, 10/6, 11/3	Dauphin County	
Mud Rn	4/14, 9/29	LaBorde Br	5/19	Armstrong Ck	4/21, 5/5
Pohopoco Ck	4/21, 4/28	Medix Rn	4/14, 5/5, 5/19, 6/2	Clarks Ck	4/28, 5/5, 5/19, 10/13
Sand Spring Rn	4/14, 4/21, 4/28	Moose Ck	5/5	Manada Ck	4/28, 5/19, 10/6
Stony Ck	4/21	Muddy Rn, Ltl	4/21	Middletown Rs	4/14, 4/28
Centre County		North Witmer Rn	5/5	Pine Ck	5/26
Bald Eagle Ck	4/28, 5/5, 5/12	Parker Lk	5/12*, 5/19, 6/2, 10/6, 11/	Powell Ck	4/21, 5/12
Beech Ck, S Fk	4/21		3	Powell Ck, S Fk	5/26
Black Bear Rn	4/21	Sinnemahoning Ck,		Stony Ck	4/28, 5/19, 5/26
Black Moshannon Ck	4/21, 4/28, 5/12,	Bennett Br	4/28	Rattling Ck	4/21, 5/5, 5/26
	5/19, 10/6	South Witmer Rn	5/5	Rattling Ck, E Br	4/21
Boy Scout Dm	5/5	Tannery Dm	5/12*, 5/19*	Wiconisco Ck	4/21, 5/12
		Wilson Rn	5/5		

<i>Waterway</i>	<i>Week of</i>	<i>Waterway</i>	<i>Week of</i>	<i>Waterway</i>	<i>Week of</i>
Delaware County		Youghiogheny R 4/14, 4/28, 5/12, 5/19, 6/9, 6/30, 7/21, 8/25, 10/6, 2/16/98		Wheeling Ck, Dunkard Fk, N Fk 4/14, 4/28 Wheeling Ck, Dunkard Fk, S Fk 4/14 Whiteley Ck 4/14	
Chester Ck	5/5, 5/26	Forest County		Huntingdon County	
Chester Ck, E Br	5/5, 5/26	Beaver Rn 5/12		Aughwick Ck, Ltl, N Br 5/12	
Chester Ck, W Br	5/5, 5/26	Bluejay Ck 4/14, 5/5, 5/19, 6/2		Blacklog Ck 4/14, 4/28	
Darby Ck	4/14, 4/28, 5/12, 10/13	Coon Ck, Bg 4/28, 5/12		Globe Rn 4/21	
Darby Ck, Ltl	5/12	Coon Ck, Ltl 4/21		Greenwood Lk 4/21*, 5/5*	
Ithan Ck	4/14, 4/28	Hickory Ck, East 4/28, 5/12, 10/6		Hares Valley Ck 5/5	
Ridley Ck	4/14, 4/28, 5/5, 10/13	Hickory Ck, West 5/5		Laurel Rn 4/14, 4/28, 5/19, 9/29	
Elk County		Hickory Rn, Ltl 5/12		Licking Ck, W 5/5	
Bear Ck	5/5	Maple Ck 4/28		North Spring Br 5/5	
Byrnes Rn	4/21	Millstone Ck, W Br 5/12		Saddler Ck 5/5	
Clarion R, E Br	4/28, 5/5, 5/12	Queen Ck 5/5		Shade Ck 4/28	
Clarion R, W Br	4/14, 4/28, 5/5, 10/6	Ross Rn 4/21, 5/5, 5/19		Shaver Ck 4/21	
Crooked Ck	4/14, 4/28, 5/5, 5/12	Salmon Ck 4/14, 4/21, 5/5		Standing Stone Ck 4/14, 4/21, 5/5, 5/19	
Hicks Rn	4/21, 5/19, 5/26	Spring Ck 4/21, 5/19		Stone Valley Lk 5/12*, 9/29, 12/15, 2/9/98	
Hicks Rn, E Br	4/21, 5/19, 5/26	The Branch 4/14		Three Springs Ck 5/5	
Hicks Rn, W Br	5/19	Tionesta Ck 4/14, 4/28		Trough Ck, Great 4/14, 4/28, 5/19, 9/29	
Hoffman Rn	4/14	Tionesta Ck, S Br 5/5, 5/26		Tuscarora Ck 5/5, 5/19	
Laurel Rn Rs	4/14*, 4/28*, 10/6, 12/15	Toms Rn 4/21, 4/28, 5/12, 5/19, 6/2, 10/6		Whipple Lk 4/21*, 5/5*, 12/15	
Maxwell Rn	5/5	Wards Ranch Pd 4/21, 5/19, 11/3		Indiana County	
Mead Rn	5/12	Franklin County		Blacklegs Ck 5/12	
Medix Rn	4/14, 5/5, 5/19, 6/2	Antietam Ck, E Br 5/5, 5/19, 5/26, 9/29		Blue Spruce Lk 4/14*	
Mill Ck, Bg	4/14, 4/21, 5/5, 5/12, 5/19, 6/2, 10/6	Antietam Ck, W Br 4/14, 4/21		Brush Ck 5/12	
Millstone Ck	4/14, 5/5, 5/19, 6/2	Buck Rn 5/19		Cush Ck 4/28	
Millstone Ck, E Br	4/14, 5/5, 5/19, 6/2	Carbaugh Rn 5/5		Cush-Cushion Ck 4/28	
Mix Rn	4/21, 5/19, 5/26	Conococheague Ck 4/14, 4/21, 4/28, 9/29		Laurel Rn 5/12	
Powers Rn	4/21, 4/28, 5/5, 5/12	Conococheague Ck, W Br 4/21, 5/5		Mahoning Ck, Ltl 4/14, 4/21, 5/5, 10/6	
Ridgway Rs	4/14*, 5/19, 10/6, 12/15	Conodoguinet Ck 5/5, 5/12		Mudlick Rn 4/14	
Rocky Rn	4/28	Cove Ck, Ltl 5/19		Toms Rn 4/21, 5/12	
Spring Ck	4/21, 5/19	Dennis Ck 5/5, 5/12		Two Lick Ck, S Br 4/28	
Spring Ck, E Br	4/21	Falling Spring Br 5/12, 5/26, 9/29		Yellow Ck 4/21, 5/5	
Straight Ck	4/21	Letterkenny Rs 5/5*, 10/6, 12/15		Yellow Ck, Ltl 5/5	
Twin Lks	4/14*, 4/28*, 5/12	Muddy Rn 5/12, 5/19		Jefferson County	
Toby Ck, Ltl	4/28, 5/12	Red Rn 5/12, 5/19		Big Rn 5/5	
West Ck	4/14, 5/12	Rowe Rn 5/5, 5/12		Canoe Ck 4/21	
Wilson Rn	4/28	Fulton County		Cathers Rn 4/28	
Wolf Rn	4/21	Aughwick Ck, Ltl 5/12		Clear Ck 4/21, 5/12, 5/19, 10/6	
Erie County		Aughwick Ck, Ltl, N Br 5/12		Clear Rn 4/21	
Cascade Ck	4/14	Aughwick Ck, Ltl, S Br 4/14, 4/28, 5/19		Cloe Lk 4/21*, 5/5*, 12/15, 2/9/98	
Conneauttee Ck	4/28, 5/12	Brush Ck 4/21		Five Mile Rn 4/21	
Crooked Ck	4/28	Cove Ck 5/19		Horm Rn 4/14	
Elk Ck	4/14, 4/21	Cowans Gap Lk 4/14*, 4/28*, 5/12*, 5/ 19*, 10/6, 12/15, 2/ 23/98		Mahoning Ck, E Br 4/21	
French Ck, S Br	4/28, 5/5	Laurel Fk 4/21		Mill Ck 4/14	
Lake Pleasant	4/28*, 5/12*, 12/22, 2/23/98	Licking Ck 4/21		Mill Ck, Ltl 5/5	
Twentymile Ck	4/14, 5/5	Oregon Ck 5/5		Pekin Rn 4/28	
Upper Gravel Pit	4/14*, 2/23/98	Sideling Hill Ck 5/5		Rattlesnake Ck 4/28	
Fayette County		Spring Rn 5/19		Rattlesnake Rn 4/28	
Back Ck	5/19	Tonoloway Ck, Ltl 5/5		Red Bank Ck 5/5, 5/12, 5/19	
Dunbar Ck	4/14, 4/28, 9/29	Wooden Bridge Ck 5/5		Red Bank Ck, N Fk 4/21, 4/28, 10/6	
Dunlap Ck	4/14, 6/2	Greene County		Sandy Ck, Ltl 5/5, 5/19	
Dunlap Ck Lk	4/28*, 5/5, 5/19*, 5/26, 6/2, 10/6, 12/15, 2/16/98	Browns Ck 4/14		Sandy Lick Ck 4/14, 5/12	
Georges Ck	4/28, 5/19	Duke Lk 4/14*, 4/28*, 12/15, 2/16/98		Toby Ck, Ltl 4/28, 5/12	
Indian Ck	4/21	Wheeling Ck, Dunkard Fk 4/28		Walburn Rn 5/12	
Meadow Rn	4/28, 5/5	Juniata County		Wolf Rn 5/19	
Mill Rn	4/21, 5/5	Big Rn 5/19		Blacklog Ck 4/14, 4/28	
Sandy Ck, Bg	4/21, 5/5	Blacklog Ck 4/14, 4/28		Cocolamus Ck 5/12	
Virgin Rn Dm	4/21*, 5/12*, 5/19, 12/15, 2/16/98				

* = Saturday stocking. See separate listing on page 7.

<i>Waterway</i>	<i>Week of</i>
Juniata County continued	
Delaware Ck	5/12
Horning Rn	5/19
Horse Valley Rn	4/21
Laurel Rn	4/21
Licking Ck, E	4/21, 5/5, 5/19
Lost Ck	5/19
Tuscarora Ck	5/5, 5/19

Lackawanna County

Aylesworth Ck Lk	4/14*, 4/21*
Chapman Lk	5/12, 9/29
Gardners Ck	5/5
Lackawanna R	5/12, 5/19
Lehigh R	4/14, 4/21, 5/5, 9/29
Merli Sarnoski Lk	4/14*, 4/21*, 5/5*, 5/19*, 9/29, 11/3, 2/23/98
Roaring Bk	5/5, 5/19, 9/29
Spring Bk	4/28
Tunkhannock Ck, S Br	4/14, 4/21, 5/12, 5/19
Wallenpaupack Ck, W Br	4/28

Lancaster County

Beaver Ck, Bg	4/21, 5/12
Beaver Ck, Ltl	4/21, 5/12
Bowery Rn	4/28
Chickies Ck, Ltl	4/14, 5/5
Climbers Rn	5/12
Cocalico Ck, Ltl	4/21, 5/12
Conestoga Ck, Ltl	4/28, 5/5
Conestoga Ck, Ltl, W Br	4/28, 5/5
Conowingo Ck	4/28, 5/12
Conoy Ck	4/14, 5/5
Donegal Ck	4/14, 5/5, 10/6
Eshelman Rn	4/14, 4/28
Fishing Ck	4/28
Hammer Ck	4/28, 5/12
Indian Rn	5/12
Londonland Rn	4/14
Meetinghouse Ck	4/14
Middle Ck	4/21, 5/12
Muddy Ck, Ltl	4/21
Muddy Run Rec Lk	4/21*, 10/6, 12/8, 2/16/98
Octoraro Ck, E Br	4/21, 5/5
Octoraro Ck, W Br	4/21, 5/5, 10/6
Pequea Ck	4/21, 5/12
Rock Rn	4/21, 5/12
Shearers Ck	4/28, 5/5
Trout Rn	5/12
Tucquan Ck	4/28

Lawrence County

Beaver R, Ltl, N Fk	4/14
Bessemer Lk	4/14*, 4/21*, 5/5, 10/6, 1/5/98
Cascade Quarry	4/14*, 10/6, 12/8
Deer Ck	4/28
Hickory Rn	4/28
Honey Ck	4/14
Neshannock Ck	4/14, 4/28, 5/5, 5/19, 10/6
Slippery Rock Ck	4/4, 5/12, 10/6
Taylor Rn	4/14

<i>Waterway</i>	<i>Week of</i>
Lebanon County	
Bachman Rn	4/14, 4/21
Conewago Ck	4/14, 4/28
Hammer Ck	4/28, 5/12
Lions Lk	4/21
Marquette Lk	4/14
Mill Ck	5/5, 5/12
Quittapahilla Ck	4/21, 4/28, 5/5, 5/12, 9/29
Rexmont Dm, Lw	4/14, 5/5
Rexmont Dm, Up	4/14, 5/5, 9/29
Snitz Ck	4/14, 5/5
Stony Ck	4/28, 5/19, 5/26
Stovers Dm	9/29, 12/15, 2/23/98
Trout Rn	4/14
Tulpehocken Ck	5/5, 5/19

Lehigh County

Cedar Ck	4/28, 5/5
Coplay Ck	4/28, 5/5
Jordan Ck	4/28, 5/5, 5/12, 10/6
Kistler Ck	4/21
Lehigh Ck, Ltl	4/21, 4/28, 5/12, 5/19, 9/29
Ontelaunee Ck	4/21
Swabia Ck	4/28, 5/5
Switzer Ck	5/5
Trout Ck, Bg	5/12, 5/19

Luzerne County

F E Walter Rs	4/28*, 5/5*
Francis Slocum Lk	4/14
Harvey Ck	5/5, 5/12, 5/19, 10/6
Harveys Lk	4/14
Irena Lk	4/21*, 5/5*, 5/19*, 10/6, 2/16/98
Lake Francis	4/14, 4/28, 5/12
Lake Took-A-While	4/21, 4/28
Lehigh R	5/5, 5/19
Lily Lk	4/14*, 4/28*, 10/6, 2/16/98
Moon Lk	4/14*, 4/21*, 4/28*, 5/5*, 10/6, 2/16/98
Mountain Springs Lk	4/28*, 5/5*, 5/19*
Nescopeck Ck	5/5, 5/12, 10/6
Pine Ck	4/28
Sylvan Lk	11/3
Wapwallopen Ck	4/28, 5/5
Wrights Ck	5/5

Lycoming County

Bear Ck, Ltl	4/21, 4/28, 5/12
Black Hole Ck	4/14, 4/28
Blockhouse Ck	4/21
Hoagland Rn	4/14
Larrys Ck	4/21
Little Pine Lk	4/21*, 4/28*, 5/5*, 9/29, 12/8, 2/9/98
Loyalsock Ck	4/21, 5/12, 5/19, 9/29
Lycoming Ck	4/28, 5/5
Mill Ck	5/5
Muncy Ck	4/14, 4/28, 5/19, 9/29
Muncy Ck, Ltl	4/28
Pine Bottom Rn, Up	4/21
Pine Ck	4/14, 4/21
Pine Ck, Ltl	4/14, 4/21, 4/28, 5/12, 9/29
Pleasant Stream	5/5

<i>Waterway</i>	<i>Week of</i>
Roaring Bk	5/19
Rock Rn	4/14, 4/28, 5/5, 5/19
Spring Ck	4/28
Trout Rn	4/28
White Deer Hole Ck	4/28

McKean County

Allegheny R	5/5
Bell Rn	4/21
Bradford Rs #3	4/14*, 4/21*, 9/29, 12/22
Brewer Rn	5/5
Chappel Fk	4/14, 4/28, 5/12, 5/26
Clarion R, W Br	4/14, 4/28
Cole Ck	5/12
Colegrove Bk	5/5
Combs Ck	4/21
Hamlin Lk	4/14*, 4/21*, 5/12, 9/29
Havens Rn	5/19
Kinzua Ck	4/21, 5/5, 5/19, 6/2, 6/16, 9/29
Kinzua Ck, S Br	4/21
Marvin Ck	4/14, 4/28, 5/12, 5/19, 9/29
Meade Rn	4/14, 4/28, 5/12, 5/26,
Potato Ck	4/14, 5/5
Potato Ck, W Br	5/5
Red Mill Bk	5/19
Sevenmile Rn	4/28
Skinner Ck	4/21
Sugar Rn	5/26
Tionesta Ck, E Br	4/28
Tunungwant Ck, W Br	5/19, 9/29
Twomile Rn	5/5
Willow Ck	4/14, 4/28, 5/12, 6/9

Mercer County

Cool Spring Ck	5/5, 5/12, 9/29
Mill Ck	4/14
Neshannock Ck	4/14, 4/28, 5/5, 5/19
Neshannock Ck, Ltl, W Br	4/14
North Deer Ck	5/19
Pine Rn	6/2
Sandy Ck	5/5, 5/19
Shenango R	4/21, 5/12, 10/6, 2/16/98
Shenango R, Ltl	5/12, 5/26
Wolf Ck	5/5, 6/2

Mifflin County

Havice Ck	5/12
Honey Ck	5/12
Kishacoquillas Ck	4/14, 4/28, 5/19
Licking Ck, E	4/21, 5/5, 5/19
Licking Ck, W	5/5
Lingle Ck	5/12
Musser Rn	5/19
Strodes Rn	5/19
Treaster Rn	5/12

Monroe County

Appenzell Ck	4/14
Brodhead Ck	4/21, 5/5, 5/19, 10/6
Buckwha Ck	4/28
Bushkill Ck	4/21, 4/28, 5/19, 10/6
Dotters Ck	5/19

<i>Waterway</i>	<i>Week of</i>
Monroe County continued	
Hidden Lk	4/14*, 5/12*, 2/23/98
Lake Ck	5/19
Lehigh R	4/14, 4/21, 5/5, 9/29
McMichaels Ck	5/5, 5/26
Pocono Ck	4/14, 5/19
Princess Rn	5/19
Snow Hill Dm	4/21*, 5/5*
Tobyhanna Ck	4/14, 4/28, 5/19, 9/29
Tobyhanna Lk	4/21*, 11/3

Montgomery County

Loch Alsh Rs	4/14, 4/21
Mill Ck	4/14, 4/21
Pennypack Ck	4/21, 4/28, 5/12
Perkiomen Ck	4/14, 5/5
Perkiomen Ck, E Br	4/21, 5/5
Skippack Ck	4/14, 5/5
Stony Ck	4/14, 4/21
Unami Ck	4/14, 5/5
Unnamed Trib	4/14, 4/21
Wissahickon Ck	4/14, 4/28, 5/12

Montour County

Kase Br	4/14
Mahoning Ck	4/14, 4/28

Northampton County

Bushkill Ck	4/14, 4/21, 5/5, 5/12, 5/26, 10/13
Bushkill Ck, Ltl	5/5, 5/26
Hokendauqua Ck	5/12, 5/26
Indian Ck	5/12, 5/26
Jacoby Ck	5/5
Lehigh Canal	4/14, 4/28
Martins Ck	4/28, 5/5
Minsi Lk	4/28*, 11/24, 2/16/98
Monocacy Ck	4/21, 5/19
Saucon Ck	4/28, 5/19
Waltz Ck	4/28, 5/5

Northumberland County

Mahantango Ck	5/12
Roaring Ck, S Br	4/28
Schwaben Ck	5/5
Shamokin Ck, Ltl	4/14, 4/28, 5/5
Zerbe Twp Rod & Gun Club Pd	4/28

Perry County

Bixler Rn	5/19
Buffalo Ck	4/28, 5/19
Buffalo Ck, Ltl	4/14, 4/28, 5/19
Bull Rn	5/5
Fishing Ck	4/28
Fowler Hollow Rn	5/5, 5/26
Horse Valley Rn	4/21
Juniata Ck, Ltl	5/19
Laurel Rn	4/21
Ltl Buffalo St Pk Lk	4/14, 4/21*, 10/6, 12/8
McCabe Rn	5/19
Montour Ck	5/19
Panther Ck	5/12
Raccoon Ck	5/12
Sherman Ck	4/21, 5/12
Shultz Ck	5/5

<i>Waterway</i>	<i>Week of</i>
Philadelphia County	
Pennypack Ck	4/21, 4/28, 5/12
Wissahickon Ck	4/14, 4/28, 5/12, 10/13

Pike County

Bushkill Ck	4/21, 4/28, 5/19, 10/6
Bushkill Ck, Ltl	4/28, 5/5, 5/19
Decker Bk	4/14, 4/21, 4/28
Dingmans Ck	4/14, 10/6
Fairview Lk	5/19, 11/3
Lackawaxen R	4/28, 5/19, 10/6
Lake Loch Lomond	4/14
Lake Minisink	4/14, 5/12
Little Mud Pond	4/28, 5/5
Masthope Ck	4/14, 4/21
Promised Land Lk, W	4/14*, 4/28*
Saw Ck	4/21
Shohola Ck	5/5

Potter County

Allegheny R	5/5, 5/12, 5/26, 9/29
Bailey Rn	4/28
Cowanesque R	4/21
Cowley Rn, E Br	4/14, 5/5, 5/12
Cowley Rn, W Br	4/14, 5/5
Elevenmile Ck	4/28
Fishing Ck	4/21
Fishing Ck, E Br	4/21
Fishing Ck, W Br	4/21
Freeman Rn	5/12
Genesee R	5/12
Genesee R, Md Br	5/12
Genesee R, W Br	5/12
Kettle Ck	4/21, 5/5, 5/12, 5/19, 6/2, 9/29
Kettle Ck, Ltl	5/5, 5/19, 6/2, 6/30
Lyman Lk	4/14*, 4/21*, 5/12, 6/30, 9/29, 11/17, 2/23/98
Lyman Rn	6/30
Oswayo Ck	4/28
Oswayo Ck, S Br	4/28
Pine Ck	4/14, 5/19
Pine Ck, W Br	4/28
Sinnemahoning Ck, E Fk	4/14, 5/12, 5/19, 6/2
Sinnemahoning Ck, First Fk	4/21, 4/28, 5/12, 9/29
South Woods Br	4/14, 5/19, 6/2

Schuylkill County

Bear Ck	4/28, 10/6
Beaver Ck	4/28
Catawissa Ck, Ltl	5/19
Cold Rn	4/28
Deep Ck	4/14
Lizard Ck	5/12
Locust Ck	4/21, 5/5
Locust Lk	4/21, 5/5, 5/12, 5/19, 12/8, 2/9/98
Lofty Rs	4/28
Mahanoy Ck, Ltl	5/12, 5/19
Mahantango Ck	5/12
Mahoning Ck	4/14
Neifert Ck Flood Control Rs	5/12

<i>Waterway</i>	<i>Week of</i>
Pine Ck (Trib. to Mahantango Ck)	
	4/14, 5/5, 5/19
Pine Ck (Trib. to Schuylkill R)	
	4/28, 5/19
Pine Ck (Trib. to Schuylkill R, Ltl)	
	5/12, 5/19
Pumping Station Dm	4/28, 5/12
Rabbit Run Rs	5/5
Red Ck	4/28
Schuylkill R, Ltl	5/12, 10/6
Swatara Ck, Lw, Ltl	4/21
Swatara Ck, Up, Ltl	4/21
Tuscarora Lk	10/6
Whipoorwill Dm	4/21, 5/12, 5/19

Snyder County

Kern Rn	5/12
Mahantango Ck, N Br	4/28
Mahantango Ck, W Br	4/28
Middle Ck	4/14, 5/12
Middle Ck, N Br	5/12
Middle Ck, S Br	5/12
Swift Rn	5/12, 5/19, 5/26

Somerset County

Beaverdam Ck	4/28
Beaverdam Rn	5/26
Bens Ck	4/14, 5/5
Bens Ck, S Fk	4/14, 5/5
Blue Hole Ck	4/14
Breastwork Rn	4/14
Brush Ck	6/2
Casselman R	4/28
Clear Shade Ck	4/28, 5/19, 5/26
Cub Rn	5/19
Elk Lick Ck	5/26
Fall Ck	4/14
Flaugherty Ck	5/26
Gladdens Rn	5/12
Jones Mill Rn	4/14, 4/21, 5/5, 5/12
Juniata R, Raystown Br	4/14
Kimberly Rn	4/21, 5/12
Kooser Lk	4/14*, 5/5*, 5/12, 6/23
Kooser Rn	4/14, 4/21, 5/12
Laurel Hill Ck	4/14, 4/21, 4/28, 5/5, 5/12, 9/29
Laurel Hill Lk	4/14*, 5/5*, 5/19, 12/15, 2/16/98
McClintock Rn	5/5
Miller Rn	5/26
Piney Ck	4/21, 5/19, 5/26
Shafer Rn	5/5
Shaffers Rn	4/14
Stony Ck	4/28, 5/26
Tub Mill Rn	5/26
Whites Ck	5/5
Wills Ck	4/21, 5/19, 6/2
Youghiogheny R	4/14, 4/28, 5/12, 5/19, 6/9, 6/30, 7/21, 8/25, 10/6, 2/16/98

Sullivan County

Double Rn	5/12
Elk Ck	5/12
Fishing Ck, W Br	5/5

Waterway	Week of
Sullivan County continued	
Hunters Lk	4/21*, 5/12*, 5/19*, 10/6, 11/3, 2/23/98
Loyalsock Ck	4/28, 5/12
Loyalsock Ck, Ltl	4/14
Mehoopany Ck, N Fk	5/12
Mill Ck	4/14
Muncy Ck	4/14, 5/19
Pole Bridge Rn	4/14
Rock Rn	4/28

Susquehanna County

Fall Bk	4/21
Gaylord Ck	5/12
Lackawanna R	5/12, 5/19
Martin Ck	4/14
Meshoppen Ck	4/21
Meshoppen Ck, W Br	4/21
Nine Partners Ck	5/5
Quaker Lk	4/21, 5/5, 5/12, 11/17
Salt Lick Ck	4/28, 5/5
Silver Ck	5/5
Snake Ck	4/28
Starrucca Ck	4/21
Tunkhannock Ck	5/5
Tunkhannock Ck, E Br	5/12
Wyalusing Ck, E Br	4/14
Wyalusing Ck, Md Br	4/14
Wyalusing Ck, N Br	4/14

Tioga County

Asaph Rn	4/21
Asaph Rn, Lf	4/21
Beechwood Lk	4/21*, 5/5, 5/12*, 12/22
Cowanesque R	4/21
Lake Hamilton	4/14*, 4/28*, 9/29, 11/17, 2/23/98
Long Rn	4/14, 4/28, 5/5
Marsh Ck	5/5
Mill Ck	4/21
Pine Ck	4/14, 5/5, 5/19
Roaring Bk	5/19
Stony Fk	4/28
Stony Fk, E Br	4/28
Tioga R	4/14

Union County

Buffalo Ck	4/14, 5/12
Buffalo Ck, N Br	5/12
Halfway Lk	4/14*, 5/5*, 9/29, 11/3
Laurel Rn	5/12
Penns Ck	5/12
Rapid Rn	4/21, 4/28, 5/5, 6/2
Spring Ck	4/28
Spruce Rn	4/21
White Deer Ck	4/28, 5/12, 5/19, 9/29

Venango County

East Sandy Ck	4/14
Hemlock Ck	5/12
Horse Ck	5/12
Justus Lk	5/5*, 5/19*, 10/6, 11/3, 2/16/98
Mill Ck	5/12
Oil Ck	4/28, 5/5, 10/6
Pine Rn	5/12
Pithole Ck	4/21, 5/5

Waterway	Week of
Pithole Ck, W	4/21
Prather Ck	4/28
Sandy Ck	5/5, 5/19
Sandy Ck, Ltl	4/14, 10/6
Scrubgrass Ck, Ltl	5/12
Sugar Ck	4/21, 5/19
Sugar Ck, E Br	4/21, 4/28
Sugar Ck, Ltl	4/21
Two Mile Rn, Lw	4/14
Two Mile Rn, Up	4/14, 4/28

Warren County

Blue Eye Rn	5/12
Brokenstraw Ck	4/21, 5/19
Brokenstraw Ck, Ltl	5/12
Browns Rn	4/28
Caldwell Ck	4/28, 5/12, 10/6
Caldwell Ck, W Br	5/19
Chapman Lk	4/21*, 5/5*, 5/19, 12/8, 1/5/98
Farnsworth Br	4/21, 5/5, 5/19, 6/2
Fourmile Rn	5/19
Hemlock Rn	4/28
Hickory Ck, E	4/28
Hickory Ck, W	5/5
Jackson Rn	5/26, 9/29
Perry Magee Rn	5/12
Pine Ck	5/12, 6/2
Queen Ck	5/5
Sixmile Rn	5/19
Sixmile Rn, N Fk	5/19
Spring Ck	5/5
Spring Ck, E Br	5/5
Thompson Rn	4/14, 4/28, 5/12, 6/9
Tidioute Ck	5/12
Tionesta Ck	4/14, 4/28
Tionesta Ck, E Br	4/21
Tionesta Ck, S Br	5/5, 5/26
Tionesta Ck, W Br	4/21, 5/5, 5/26, 6/2, 9/29
Twomile Rn	5/5

Washington County

Aunt Clara Fk	4/21
Canonsburg Lk	4/14*, 4/21*, 4/28, 5/5, 5/12, 5/19, 10/6, 11/3, 2/16/98
Chartiers Ck, Ltl	4/28, 5/5, 10/6
Dutch Fk Ck	4/21, 10/6
Dutch Fk Lk	4/14*, 4/21*, 4/28, 5/5, 5/12, 5/19, 10/6, 11/3, 2/16/98
Enlow Fk	4/14, 5/12
Kings Ck	4/21
Millers Rn	4/28, 5/5
Mingo Ck	4/14, 4/21, 4/28, 5/5
Pike Rn	4/14, 4/28, 10/6
Templeton Fk	4/14
Tenmile Ck	4/14, 5/12

Wayne County

Butternut Ck	4/21, 9/29
Dyberry Ck	4/28, 5/5, 10/6
Dyberry Ck, E Br	4/14, 4/28, 5/5, 5/12
Dyberry Ck, W Br	4/21
Equinunk Ck	4/14

Waterway	Week of
Jones Ck	4/21
Lackawanna R	5/12, 5/19
Lackawaxen R	4/28, 5/12, 5/19, 10/6
Lackawaxen R, W Br	4/21, 5/12
Long Pd	4/14, 4/28, 11/17
Upper Woods Pd	4/14*, 5/5*, 5/19, 11/17
Van Auken Ck	
(Waymart Br)	4/21
Wallenpaupack Ck, W Br	4/21, 4/28

Westmoreland County

Donegal Lk	4/14*, 4/21*, 4/28, 5/5, 5/12, 5/19, 12/8, 2/16/98
Fourmile Rn	4/14, 5/12, 5/19
Hannas Rn	5/5
Hendricks Ck	5/12
Indian Ck	4/21, 4/28, 10/6
Jacobs Ck	4/21, 5/12
Keystone Lk	4/14*, 4/21, 4/28, 5/5*, 5/19, 10/6, 12/8, 2/16/98
Linn Rn	4/21, 5/12
Loyalhanna Ck	4/14, 4/28, 5/5, 5/12, 5/19, 10/6
Mammoth Lk	4/21*, 5/5*, 5/12, 10/6, 2/16/98
Mill Ck	5/5
Northmoreland Lk	4/28*, 5/5, 5/12*, 10/6, 2/16/98
Roaring Rn	4/28
Sewickley Ck, Bg	4/21, 5/12
Tubmill Ck	5/12
Twin Lk, Lw	4/21, 4/28, 5/5, 5/19, 10/6, 12/8, 2/16/98
Twin Lk, Up	12/8

Wyoming County

Bowman Ck	4/21, 4/28, 5/19, 10/6
Horton Ck	4/21
Lake Winola	5/19, 11/3
Leonard Ck	4/28
Mehoopany Ck	5/12
Mehoopany Ck, N Fk	5/12
Meshoppen Ck	4/14, 4/21
Meshoppen Ck, W Br	4/21
Oxbow Lk	4/14, 10/6
Tunkhannock Ck, S Br	4/14, 4/21, 4/28, 5/19, 10/6

York County

Bald Eagle Ck	4/28
Beaver Ck	4/21
Blymire Hollow Rn	4/28
Codorus Ck	4/14, 4/21
Codorus Ck, E Br	4/14, 4/28, 5/19, 5/26
Codorus Ck, S Br	4/14, 4/28
Fishing Ck	4/14, 4/21, 5/5, 5/12
Haldeman Pond #1	4/14
Hanover Water Co Dm	4/14, 10/6, 12/15
Leibs Ck	4/21
Lk Marburg	4/14
Muddy Ck	4/14, 4/21, 10/6
Muddy Ck, N Br	4/14, 4/28
Muddy Ck, S Br	4/28
Otter Ck	4/14, 5/5
Yellow Breeches Ck	4/14, 4/21



PENNSYLVANIA'S 1997 APPROVED TROUT WATERS SATURDAY STOCKINGS

At its January 1997 meeting, the Commission created Saturday stockings on some publicly owned lakes as a way to increase and diversify fishing opportunities. All these Saturday stockings are inseason, beginning after the April 12 trout season opener. Since 1978, Commission practice has been to announce only the week that waters will receive inseason stockings. That policy will continue on the vast majority of trout-stocked waters. By announcing these special Saturday stockings and their locations on public lakes, the Commission hopes to serve segments of the angling public who may benefit from fishing immediately after fish are stocked.

Because of conditions beyond the Commission's control (weather, pollutions, postings, mechanical failures in stocking trucks, etc.), last-minute changes in stocking schedules may occur. In such instances, the district waterways conservation officer will attempt, when possible, to notify the local media of these changes. However, if the changes occur after local media deadlines or the officer is committed to other assignments, notice of the changes may not occur.

Waterway	Date	Time	Waterway	Date	Time	Waterway	Date	Time
Allegheny County			Centre County			Fayette County		
Deer Lks	5/3	12:30 pm	Poe Lake	4/26	10:30 am	Dunlap Ck Lk	5/3	11:00 am
Deer Lks	5/17	12:30 pm	Poe Lake	5/10	10:30 am	Dunlap Ck Lk	5/24	11:00 am
North Park Lk	5/3	1:30 pm	Clearfield County			Virgin Rn Dm	4/26	10:30 am
North Park Lk	5/10	2:00 pm	Goss Run Dm	5/3	10:30 am	Virgin Rn Dm	5/17	10:30 am
Beaver County			Goss Run Dm	5/17	10:30 am	Franklin County		
Brady Rn Lk	4/19	1:45 pm	Janesville Dm	5/3	10:30 am	Letterkenny Rs	5/10	11:30 am
Brady Rn Lk	5/3	1:45 pm	Parker Lk	5/17	10:30 am	Fulton County		
Hereford Manor Lk, Lw	4/26	1:15 pm	Tannery Dm	5/17	10:30 am	Cowans Gap Lk	4/19	11:30 am
Hereford Manor Lk, Lw	5/10	1:15 pm	Tannery Dm	5/24	10:30 am	Cowans Gap Lk	5/3	11:30 am
Hereford Manor Lk, Up	4/26	1:15 pm	Clinton County			Cowans Gap Lk	5/17	11:30 am
Hereford Manor Lk, Up	5/10	1:15 pm	Kettle Ck Lk	4/19	10:45 am	Cowans Gap Lk	5/24	11:30 am
Raccoon Lk	4/26	1:45 pm	Kettle Ck Lk	5/3	10:45 am	Greene County		
Raccoon Lk	5/10	1:45 pm	Kettle Ck Lk	5/17	10:45 am	Duke Lk	4/19	2:15 pm
Berks County			Columbia County			Duke Lk	5/3	2:15 pm
Angelica Lk	4/19	12:00 pm	Briar Creek Lk	5/3	11:30 am	Huntingdon County		
Blair County			Briar Creek Lk	5/10	11:30 am	Greenwood Lk	4/26	9:30 am
Canoe Lk	4/19	10:30 am	Briar Creek Lk	5/17	11:30 am	Greenwood Lk	5/10	9:30 am
Canoe Lk	5/3	10:30 am	Cumberland County			Stone Valley Lk	5/17	9:30 am
Bucks County			Childrens Lk	5/3	9:30 am	Whipple Lk	4/26	9:30 am
Levittown Lk	4/19	12:30 pm	Childrens Lk	5/10	9:30 am	Whipple Lk	5/10	9:30 am
Levittown Lk	5/3	12:30 pm	Doubling Gap Lk	4/19	9:30 am	Indiana County		
Levittown Lk	5/10	12:30 pm	Doubling Gap Lk	4/26	9:30 am	Blue Spruce Lk	4/19	12:45 pm
Butler County			Laurel Lk	5/3	9:30 am	Jefferson County		
Glade Run Lk	5/3	1:30 pm	Laurel Lk	5/10	9:30 am	Cloe Lk	4/26	11:15 am
Glade Run Lk	5/17	1:30 pm	Laurel Lk	5/17	9:30 am	Cloe Lk	5/10	11:15 am
Cambria County			Laurel Lk	5/24	9:30 am	Lackawanna County		
Duman Dm	4/19	11:30 am	Opossum Ck Lk	4/19	9:30 am	Aylesworth Ck Lk	4/19	2:00 pm
Duman Dm	5/3	11:30 am	Opossum Ck Lk	4/26	9:30 am	Aylesworth Ck Lk	4/26	2:00 pm
Lk Rowena	4/19	11:30 am	Opossum Ck Lk	5/3	9:30 am	Merli Sarnoski Lk	4/19	2:00 pm
Lk Rowena	5/3	11:30 am	Elk County			Merli Sarnoski Lk	4/26	2:00 pm
Cameron County			Laurel Rn Rs	4/19	11:30 am	Merli Sarnoski Lk	5/10	2:00 pm
George B. Stevenson Rs	4/26	11:00 am	Laurel Rn Rs	5/3	11:15 am	Merli Sarnoski Lk	5/24	2:00 pm
George B. Stevenson Rs	5/10	11:00 am	Ridgway Rs	4/19	11:30 am	Lancaster County		
George B. Stevenson Rs	5/24	11:00 am	Twin Lks	4/19	11:30 am	Muddy Run Rec Lk	4/26	11:00 am
			Twin Lks	5/3	11:15 am			
			Erie County					
			Lake Pleasant	5/3	9:00 am			
			Lake Pleasant	5/17	9:00 am			
			Upper Gravel Pit	4/19	9:30 am			

Saturday Stockings continued

Waterway	Date	Time	Waterway	Date	Time	Waterway	Date	Time
Lawrence County			Northampton County			Union County		
Bessemer Lk	4/19	2:00 pm	Hidden Lk	5/17	11:00 am	Halfway Lk	4/19	12:30 pm
Bessemer Lk	4/26	2:00 pm	Snow Hill Dm	4/26	10:45 am	Halfway Lk	5/10	12:30 pm
Cascade Quarry	4/19	2:00 pm	Snow Hill Dm	5/10	10:45 am	Venango County		
Luzerne County			Tobyhanna Lk	4/26	2:00 pm	Justus Lk	5/10	12:45 pm
F E Walter Rs	5/3	11:45 am	Perry County			Justus Lk	5/24	12:45 pm
F E Walter Rs	5/10	11:45 am	Ltl Buffalo St Pk Lk	4/26	9:30 am	Warren County		
Irena Lk	4/26	11:45 am	Pike County			Chapman Lk	4/26	9:30 am
Irena Lk	5/10	11:45 am	Promised Land Lk, Lw	4/19	2:00 pm	Chapman Lk	5/10	9:30 am
Irena Lk	5/24	11:45 am	Promised Land Lk, Lw	5/3	2:00 pm	Washington County		
Lily Lk	4/19	12:00 pm	Potter County			Canonsburg Lk	4/19	2:00 pm
Lily Lk	5/3	11:45 am	Lyman Lk	4/19	9:30 am	Canonsburg Lk	4/26	1:30 pm
Moon Lk	4/19	11:45 am	Lyman Lk	4/26	9:30 am	Dutch Fk Lk	4/19	2:00 pm
Moon Lk	4/26	11:45 am	Somerset County			Dutch Fk Lk	4/26	1:30 pm
Moon Lk	5/3	11:45 am	Kooser Lk	4/19	10:00 am	Wayne County		
Moon Lk	5/10	11:45 am	Kooser Lk	5/10	10:00 am	Upper Woods Pd	4/19	9:00 am
Mountain Springs Lk	5/3	11:45 am	Laurel Hill Lk	4/19	10:00 am	Upper Woods Pd	5/10	9:00 am
Mountain Springs Lk	5/10	11:45 am	Laurel Hill Lk	5/10	10:00 am	Westmoreland County		
Mountain Springs Lk	5/24	11:45 am	Sullivan County			Donegal Lk	4/19	12:00 pm
Lycoming County			Hunters Lk	4/26	11:00 am	Donegal Lk	4/26	12:30 pm
Little Pine Lk	4/26	11:00 am	Hunters Lk	5/17	11:00 am	Keystone Lk	4/19	12:00 pm
Little Pine Lk	5/3	11:00 am	Hunters Lk	5/24	11:00 am	Keystone Lk	5/10	12:00 pm
Little Pine Lk	5/10	11:00 am	Tioga County			Mammoth Lk	4/26	12:30 pm
McKean County			Beechwood Lk	4/26	9:30 am	Mammoth Lk	5/10	12:00 pm
Bradford Rs #3	4/19	9:45 am	Beechwood Lk	5/17	9:30 am	Northmoreland Lk	5/3	12:30 pm
Bradford Rs #3	4/26	9:30 am	Lake Hamilton	4/19	10:15 am	Northmoreland Lk	5/17	12:30 pm
Hamlin Lk	4/19	9:45 am	Lake Hamilton	5/3	10:15 am			
Hamlin Lk	4/26	9:45 am						
Monroe County								
Hidden Lk	4/19	11:00 am						

1997 Seasons, Sizes and Creel Limits

COMMONWEALTH INLAND WATERS*



SPECIES	SEASONS	MINIMUM SIZE	DAILY LIMIT
All species of TROUT and SALMON	Regular Season- April 12 at 8 a.m. to midnight September 1	7 inches	8- streams, lakes and ponds (combined species) except areas with special regulations
	Extended Season- all approved trout streams and their downstream areas; and all lakes and ponds, January 1 to midnight February 28 and September 2 to midnight December 31	7 inches	3 (combined species)
BASS- Largemouth and Smallmouth and Spotted all inland waters**	January 1 to midnight April 11 and 12:01 a.m. on June 14 to midnight, December 31***	12 inches	6 (combined species from all habitats)
MUSKELLUNGE and Muskellunge hybrids	January 1 to midnight March 14 and 12:01 a.m. on May 3 to midnight, December 31	30 inches	2 (combined species)
PICKEREL****		15 inches	6
PIKE- Northern and Amur		24 inches	2 (combined species)
WALLEYE and hybrids (Saugeye)		15 inches	6
SAUGER		12 inches	6
AMERICAN SHAD	Open year-round	no minimum	6
AMERICAN SHAD (Lehigh River and tributaries)	Open year-round	no minimum	1
AMERICAN SHAD (Susquehanna River and tributaries)	Closed year-round		0
HERRING and HICKORY SHAD	Open year-round	no minimum	no daily limit
STRIPED BASS and STRIPED BASS/WHITE BASS HYBRIDS	Open year-round	20 inches	2 (combined species)
SUNFISH, YELLOW PERCH, CRAPPIES, CATFISH, ROCK BASS, SUCKERS, EELS, CARP, WHITE BASS	Open year-round	no minimum	50 (combined species)
BAITFISH and FISHBAIT (except mud bugs)	Open year-round	no minimum	50 (combined species)
MUDBUGS (dragonfly nymphs)	Open year-round	no minimum	Unlimited if taken from lakes, ponds, swamps, and adjacent areas. 50 per day if taken from moving waters (rivers and streams)
PADDLEFISH	Closed year-round		0

* Includes the Youghiogheny Reservoir and does not include SPECIAL REGULATION AREAS.

** See Conowingo Reservoir and Susquehanna River and tributaries charts for special bass seasons applicable to flowing waters within the Susquehanna River Basin.

*** Approved trout waters are closed to fishing from March 1 to opening day of the regular trout season in April.

**** During the period from 12:01 a.m. January 1 to midnight March 14 and 12:01 a.m. December 1 to midnight December 31, the daily limit of pickerel is three.





Annual Report

Fiscal Year 1995-96

(July 1995 Through June 1996)



The Commission continues to publish a wealth of special publications, books, pamphlets and information sheets. Publications revenue increased \$6,300 this fiscal year over last year.

KARE Program

Through the Keystone Aquatic Resource Education, or KARE, program, Commission employees, volunteers and other partners reached more than 250,000 young people and adults with resource or fishing skills-oriented education programs. Volunteers contributed more than 2,000 hours to the KARE program. Even though the majority of those reached through these programs were children, some 1,500 adults participated in two-day training sessions. These sessions are designed to assist adults in teaching about our aquatic resources and fishing skills.

Commission education staff worked with the Pennsylvania Department of Education in the development of educational standards. The development of these standards with the Commission's input guarantees that students will receive instruction about our water and fishery resources. In addition, the increased emphasis on lifelong recreation in the new physical education standards provides the Commission with a unique opportunity to teach fishing in a formal education setting. The Department of Education is providing technical assistance to make this possible.

KARE is funded through a matching grant from the United States Fish and Wildlife Service through the Sport Fish Restoration Trust Fund. Your tackle purchases support this fund, so Pennsylvania anglers directly support these educational programs.

Graphic Services

The Graphic Services Section continues to support the Commission's programs with graphic design, printing, and duplication. Greater efficiency and cost-effective operations were a result of this section's acquisition of bindery functions this past year. Items produced within this section include: fish species paintings, embroidered patches and promotional theme items, exhibits/signage, audio/visual graphics, publication and magazine design. New this year to this section's efforts was providing graphics and technical support for the Commission's home page on the Internet.

Bureau of Engineering and Development

During this fiscal year, the Bureau awarded a contract for the design of Beaver Creek Dam, Clarion County, and another contract was awarded for stability and spillway capacity analysis at Dutch Fork and Canonsburg lakes, Washington County. A contract was also awarded for repair of the dock pilings at the North East Marina, Erie County. Staff also connected the hatchery discharge, superintendent's dwelling and administration building at the Corry Fish Culture Station to public sewer.

Staff completed construction of the pumpout station at the Walnut Creek Access Area, Erie County, and dredging of the marina basins at the Walnut Creek Access Area and North East Marina, Erie County, was completed.

Staff transported sand at North East Marina, Erie County, and completed bird predation structures at the Pleasant Mount and Benner Spring Fish Culture stations. Bureau personnel completed construction of waste collection and waste treatment systems at the Tylersville Fish Culture Station. Construction of the Bellefonte Fish Culture Station wastewater treatment facilities and renovations continued.

Staff completed cleanups at various access areas, necessitated by the destruction from the floods of 1996. Staff also completed construction of the building shell for the new Property Maintenance Area IV building.

Repairs to the spillway at Kahle Lake, Clarion and Venango counties, was accomplished, and dredging of Douglas Pond at the Pleasant Mount Fish Culture Station, was also completed.

Staff also built the Bloomsburg Access, Columbia County, and completed emergency drawdown and investigation of the Hemlock Lake spillway because of problems found during annual dam inspection. Work currently continues on these repair plans. Staff also completed an erosion control project at Terrytown Access, Bradford County.

Bureau of Law Enforcement

We had indicated in last year's report that a class of officers would graduate

during the 1995-1996 fiscal year. This occurred on June 21, 1996, and certainly was a significant event for the Bureau of Law Enforcement.

Immediately following graduation, four of the new officers were assigned to districts that were vacant because of retirements or transfers. They were Clinton County, Thomas Nunamacher; East Philadelphia County, Scott Reichert; North York, George Geisler; and South Chester, Thomas Benevento. The other new conservation officers were assigned to a variety of duties in the region where they reside until such time as a district vacancy occurs. Officers retiring during this period were Loretta Bednarchik, Don Parrish and Robert Cortez.

In addition to a Waterways Conservation Officer recruit school, the Bureau also provided in-service training for all waterways conservation officers, deputy waterways conservation officers and secretaries. A variety of subjects was presented and/or reviewed in an effort to keep all employees up to date with current law enforcement practices and administrative procedures.

The Bureau continued its attendance at a variety of public relations and educational functions totaling more than 2,300 separate meetings and presentations. These included many sportsmen's club meetings, and working at major outdoor shows in Pittsburgh, Allentown, Williamsport, York, Altoona, Erie, King of Prussia, Bloomsburg, Cleveland and other key locations. Officers also participated in or presented programs for youth field days, youth camps and many schools.

Waterways Conservation Officers perform a wide variety of law enforcement functions with primary emphasis on the Fish and Boat Code. Prosecutions for the most common types of violations have remained fairly constant for the past few years, usually numbering around 10,000. The types of violations detected has not changed much. The most common violations were fishing without a license, littering, insufficient number of life jackets (PFDs) aboard, fishing out of season, too many fish, and property infractions. The number of B.U.I. (boating under the influence) cases increased somewhat with over 50 cases prosecuted during this period. Boating under the influence of alcohol or drugs is a serious matter and those convicted or pleading guilty to this offense have been sentenced to pay fines up to \$1000 with some also getting jail time.

The Bureau continues to play a very active role in the investigation of water pollution and stream disturbance incidents, and when necessary, the prosecution of the persons responsible for the violation. Much of this work is done in cooperation with other state and federal agencies such as the PA Department of Environmental Protection and the U.S. Environmental Protection Agency. Much of the information we receive regarding potential damage to our waters comes from anglers and boaters and other environmentally concerned citizens. Officers investigated 371 water pollution and stream disturbance cases, 248 mine drainage and 704 stream encroachment cases.

Bureau of Fisheries

Division of Fisheries Management

The main thrust of the Division's time involved the Dingell-Johnson Wallop-Breaux Act federally funded (75 percent reimbursement) Fisheries Management Project. The project covers resource inventory work documenting the quality and quantity of fisheries in the state, the analysis of data from those surveys, evaluation of management techniques (including stocking, regulations and habitat manipulation), and the coordination of other Commission activities including all stocking necessary to implement management plan recommendations. In addition, the project funds staff activities necessary to disseminate resource information to the public, within the

Commission and to other resource managers within the Commission as well as in other regulatory agencies as to habitat and environmental protection.

User effect on aquatic resources as well as opinions on how the resource is being managed in addition to experience provided by the current management are key components in resource-based management. The wage budget did not permit angler surveys during the first half of the fiscal year. However, during the second half staff initiated work on eight waterways.

Creel survey activities on five Pennsylvania lakes resulted in approximately 10,000 angler contacts from April through August, with more than 6,000 fish measured or examined for marks (fin clips) by creel agents.

Staff also conducted angler interviews on Shenango Reservoir to assess opinion on the Big Bass Special Regulations currently in place there.

On a less intensive but certainly more extensive basis, staff met with various user groups on many subjects. Division personnel also met with non-hunting/fishing organizations.

Opportunity to spread the word about aquatic resource stewardship, the Commission and resource management often took the form of demonstrations, displays and lectures to groups.

Much communication occurred with resource managers and/or administrators in other agencies at the local, county, state and federal level regarding fisheries management activities.

Staff also participated in a wide variety of studies and special activities.

Division staff availed their technical

expertise and skills to others outside the agency concerning effects on aquatic resources by a host of activities, extent of resources in the state and how these resources are managed.

Much time was spent in FY 95/96 working with fellow employees on disseminating information, sharing technical skills, training and planning.

Nongame and Threatened Species Unit

During the 1995/96 fiscal year the Fisheries Biologist responsible for Commission Herpetology, Endangered Species and Triploid Grass Carp program:

- Prepared written responses to 527 inquiries regarding PA Natural Diversity Inventory Endangered and Threatened Species and possible impacts from various encroachment activities.

- Reviewed applications for 467 individual timber rattlesnake hunter permits and seven organized reptile and amphibian hunts.

- Reviewed applications for 590 triploid grass carp stocking permits and 15 importer/transporter permits.

- Supervised a Herpetologist/Fisheries Research Assistant hired on a one-year contract basis by the Nature Conservancy through the Wild Resource Conservation Fund to work specifically on non-game and threatened/endangered species.

Division of Research

Lake Erie. Fishing opportunities on Lake Erie were increased through regulation changes that took place during the period July 1, 1995, to June 30, 1996. A spring trophy bass season was created to allow and encourage angler use of the outstanding smallmouth bass fishing in the Pennsylvania waters of Lake Erie. The season from mid-April to mid-June has a 20-inch minimum size limit and a one-per-day creel limit.

Steelhead and salmon fishing in Lake Erie tributaries has been enhanced by allowing fishing during the first two weeks of April. Previously tributaries were closed to steelhead fishing. In addition, the steelhead and salmon fisheries were conserved when the creel limit of 8 trout/salmon was adjusted so that only 3 salmonids over 15 inches can be harvested from tributaries anytime during the year.

Yellow perch stock rehabilitation and enhancement will occur with new regulations that include an 8-inch minimum



Pleasant Gap Fish Culture Station

size limit and a 20-per-day creel limit.

An angler use-and-fish-harvest survey was initiated to evaluate changes to the Lake Erie fisheries, which result from these regulation changes.

Susquehanna River shad restoration. The 1995 out-migration of juvenile shad from the Susquehanna River appeared to be very large. The Conestoga River and Conodoguinet Creek were successfully used as shad nurseries, which was demonstrated when juvenile shad were recovered in the autumn 1995 out-migration.

Flooding during the January 1996 storm caused major damage to fish passage construction facilities at Holtwood Dam and lesser damage at Safe Harbor. In spite of the delays caused by flood recovery, both projects should be in service to pass the spring 1997 shad run. York Haven Dam is actively pursuing a gated opening of the East Channel Dam (Red Hill Dam) for fish passage.

Significant progress was made to remove tributary blockages, restore riverine habitat and improve safety at dams on the Conestoga River, Muddy Creek and Frankstown Branch of the Juniata River. Construction of a fish ladder was completed at the Huntingdon Borough Water Authority Dam on Standing Stone Creek.

Shad eggs were collected from both the Hudson River and the Delaware River in spring 1996. Van Dyke Shad Hatchery produced about 8.5 million American shad fry in spring 1996, which were stocked at eight sites.



In addition, nearly one million shad fry from Van Dyke were stocked in the Lehigh River (major tributary to the Delaware River) to support the shad restoration effort in that river.

PFBC drinking water quality assurance. The Water Quality Unit has developed a project to ensure the quality of the drinking water provided by the Pennsylvania Fish and Boat Commission at all its facilities.

Hatchery fish-health testing. The Research Pathology Unit and Fish Culture Research Unit are collaborating on stud-

ies designed to evaluate the efficacy of drugs and chemicals used to maintain hatchery fish health.

The purpose of the studies is to provide pivotal information supporting including fish species and fish diseases on the labeled uses for these drugs and chemicals.

Division of Trout Production, Cooperative Nursery Unit

As of June 30, 1996, Cooperative Nursery files list 157 sponsors and 190 nursery sites across the state. This number includes four largemouth bass, one walleye and one experimental striped bass unit located in 50 counties. Seven of the 157 sponsors are presently inactive. There are nine prospective sites under investigation for three present sponsors and six potential new sponsors.

During the fiscal year, coldwater nurseries released 1,026,777 catchable salmonids and 130,900 steelhead into Commonwealth waters open to the public.

Three warmwater nurseries released a total of 2,217 largemouth bass averaging 6 to 10.5 inches into three lakes. The coolwater nursery in Erie County released 600,000 walleye fry, 20,000 one-inch fingerlings, and 700,000 yellow perch fry into Presque Isle Bay. The Raystown Striper Club, Huntingdon County, stocked 31,000 striped bass averaging 4 to 6 inches into Raystown Lake.

Bureau of Administration

This fiscal year proved to be very busy for the Bureau of Administration. It included the restructuring of the Commission, in which the two information services sections, previously under the direction of the bureaus of Boating and Fisheries, were consolidated under the renamed Bureau of Administration. The Boat Registration Division was also transferred in, becoming a section in the bureau. Bindery operations were transferred to the new Bureau of Boating and Education, and Personnel Services became a part of the Executive Office.

During this fiscal year we also had the first increase in basic license fees in 12 years and the splitting of the 5-day tourist license into two new classifications (3-day and 7-day tourist). Consistent with past experience, when increasing fees, a 7 percent reduction in unit sales was

expected. But overall unit sales actually dropped about 10 percent. Individual classifications of licenses showed even bigger variances—non-resident license sales dropped by almost 30 percent, but the two new tourist classes, led by the 3-day tourist license, more than doubled the previous year's tourist total.

This year we also debuted a brand new look, feel and makeup of the *Summary of Fishing Regulations and Laws*. Not only was it a larger digest size, making it possible to use larger type and thus complying with ADA requirements, but for the first time ever, it included paid advertising. These two changes enabled the Commission to publish 1.6 million copies of this summary at a savings of some \$63,000.

Internal budgeting procedures were adopted and implemented, which move the Commission toward a modified zero-based budgeting system. This approach requires bureau directors and division heads to closely examine and justify the budgetary needs of each area of responsibility under their supervision.

In the purchasing arena, major changes stemmed from initiatives of the Governor's Office. Most significantly, purchasing guidelines and limits were liberalized for the first time in several years, with a result of more local autonomy in purchasing decisions, coupled with a more distributed workload. The Commission has more say in what it buys, but also has to do more of the work.



Boat registrations

Boat registrations are at an all-time high, with about 340,000 boats. New personal watercraft registrations continue to lead the charge. A boat titling bill was passed by the legislature and signed into law by Governor Ridge. Regulations to implement this legislation, as well as operating procedures to accomplish the task, were initiated.

Bureau of Fisheries

FISH STOCKING STATISTICS – 1995-96 FISCAL YEAR STATE-FEDERAL STOCKING PROGRAM

Coldwater Fisheries

	No. of Areas Stocked	No. of Miles Stocked	No. of Acres Stocked
Number of streams stocked with adult trout	786		
Miles of streams stocked with adult trout		4,862	
Acres of streams stocked with adult trout			22,262
Number of lakes stocked with adult trout	123		
Acres of lakes stocked with adult trout			9,306
Totals	909	4,862	31,568

Number of coldwater fish (trout and salmon) stocked:

Fry	-0-
Fingerling	3,050,300
Adult	5,303,511
Total	8,353,811



Warm/Coolwater Fisheries

	No. of Areas Stocked	No. of Miles Stocked	No. of Acres Stocked
Number of warm/coolwater areas stocked	169		
Miles of warm/coolwater streams stocked		218	
Miles of warm/coolwater rivers stocked		904	
Acres of warm/coolwater ponds and lakes stocked			85,564
Totals	169	1,122	85,564

Number of warm/coolwater fish stocked:

Fry	85,327,250
Fingerling	1,848,492
Adult	44,762
Total	87,220,504

GRAND TOTAL OF ALL SPECIES STOCKED 95,574,315

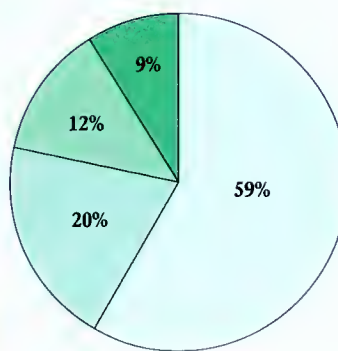
Where the Money Comes From

Fish Fund

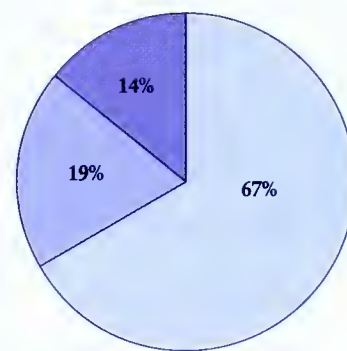
Total Fish Fund Revenue	\$26,710,552	100%
Fishing Licenses	15,639,503	59%
Federal Aid, Augmentations	5,356,782	20%
Trout/Salmon Permits	3,382,850	12%
Miscellaneous Revenue	2,331,417	9%

Boat Fund

Total Boat Fund Revenue	\$6,273,257	100%
Boat Registrations	4,182,979	67%
Augmentations	1,208,431	19%
Miscellaneous Revenue	881,847	14%



FISH FUND



BOAT FUND

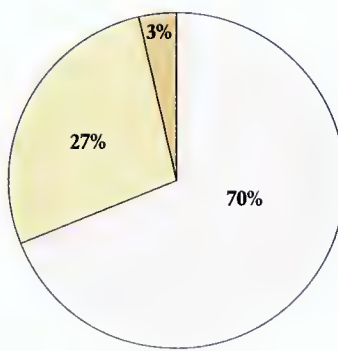
Where the Money Goes

Fish Fund

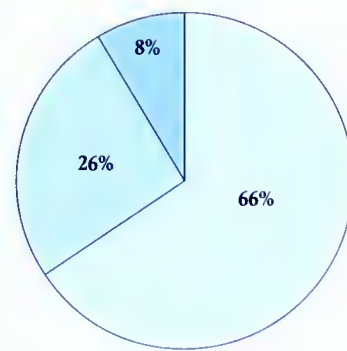
Total Expenditures and Commitments	\$27,286,867	100%
Salaries, Wages, Benefits	19,097,376	70%
Operational Expenses	7,278,043	27%
Fixed Assets	911,448	3%

Boat Fund

Total Expenditures and Commitments	\$7,355,031	100%
Salaries, Wages, Benefits	4,832,947	66%
Operational Expenses	1,899,113	26%
Fixed Assets	622,971	8%



FISH FUND



BOAT FUND

Amounts are rounded to the nearest whole dollar.
Percentages are rounded to the nearest whole number.



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Location	1281 Otter Street, Franklin, PA
Southwest, Anthony B. Murawski, Manager	814-445-8974
Mailing Address	236 Lake Rd., Somerset, PA 15501-1644
Location	On Lake Somerset, Somerset, PA
Northeast, Kerry L. Messerle, Manager	717-477-5717
Mailing Address	Box 88 Sweet Valley, PA 18656-0088
Location	On Harris Pond, Sweet Valley, PA
Southeast, Barry J. Pollock, Manager	717-626-0228
Mailing Address	Box 8, Elm, PA 17521-0008
Location	On Speedwell Forge Lake
Northcentral, Paul F. Swanson, Manager	717-726-6056
Mailing Address	P.O. Box 187, Lamar, PA 16848-0187
Location	Fishing Creek Rd., Lamar, PA
Southcentral, Larry V. Boor, Manager	717-486-7087
Mailing Address	1704 Pine Rd., Newville, PA 17241
Location	On Pine Rd., Huntsdale, PA

BUREAU OF FISHERIES

Director, Delano R. Graff	814-359-5154
Administrative Officer, William H. Beck	814-359-5161
Warmwater/Coolwater Production, Marty Marcinko, <i>Chief</i>	814-359-5222
Division of Trout Production, Dennis Ricker, <i>Chief</i>	814-359-5141
Division of Fisheries Management, Richard Snyder, <i>Chief</i>	814-359-5177
Division of Research, Rickalon Hoopes, <i>Chief</i>	814-355-4837
Cooperative Nursery Unit, Cecil R. Houser, <i>Chief</i>	814-359-5172

AREA FISHERIES MANAGERS

Area 1: Craig W. Billingsley	814-683-4451
Mailing Address	P.O. Box 127, Linesville, PA 16424-0127
Area 2: Ronald D. Lee	814-755-3890
Mailing Address	HCO2, Box 1, Tionesta, PA 16353-9729
Area 3: Bruce A. Hollender	814-359-5118
Mailing Address	450 Robinson Lane, Bellefonte, PA 16823-9620
Area 4: Robert E. Moase	717-477-5717
Mailing Address	Box 88, Sweet Valley, PA 18656-0088
Area 5: David A. Arnold	717-588-6388
Mailing Address	PA Fish & Boat Commission, Bushkill, PA 18324
Area 6: Michael L. Kaufmann	610-847-2442
Mailing Address	P.O. Box 356, Revere, PA 18953-0356
Area 7: Lawrence L. Jackson	717-486-3710
Mailing Address	195 Lebo Rd., Carlisle, PA 17013-9362
Area 8: Richard D. Lorson	814-445-3454
Mailing Address	236 Lake Rd., Somerset, PA 15501-1644

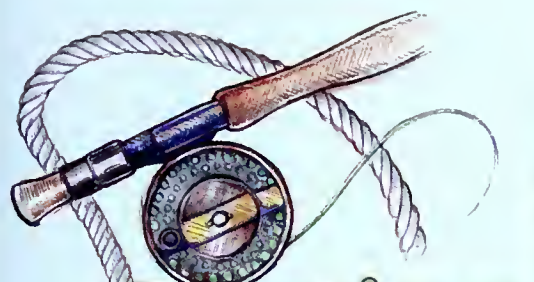
FISH CULTURE STATIONS

Bellefonte, Jeffrey L. Weaver, <i>Manager</i>	814-355-3371
Mailing Address	1150 Spring Creek Rd., Bellefonte, PA 16823-8458
Benner Spring, Paul V. Martis, <i>Manager</i>	814-355-4837
Mailing Address	1225 Shiloh Rd., State College, PA 16801-8495
Big Spring, Terry L. Farner, <i>Manager</i>	717-776-3170
Mailing Address	844 Big Spring Rd., Newville, PA 17241-9473
Corry, William C. Shuey, <i>Manager</i>	814-664-2122
Mailing Address	13365 Route 6, Corry, PA 16407
Fairview, Neil W. Shea, <i>Manager</i>	814-474-1514
Mailing Address	P.O. Box 531, Fairview, PA 16415-0531
Huntsdale, Paul K. Drumm, <i>Manager</i>	717-486-3419
Mailing Address	195 Lebo Rd., Carlisle, PA 17013-9362
Linesville, James E. Harvey, <i>Manager</i>	814-683-4451
Mailing Address	P.O. Box 127, Linesville, PA 16424-0127
Oswayo, Kenneth C. Martin, <i>Manager</i>	814-698-2102
Mailing Address	RR 2 Box 84, Coudersport, PA 16915-9646
Pleasant Gap, Robert E. Wilberding, <i>Manager</i>	814-359-5121
Mailing Address	450 Robinson Lane, Bellefonte, PA 16823-9620
Pleasant Mount, Thomas A. Pekarski, <i>Manager</i>	717-448-2101
Mailing Address	P.O. Box 3, Pleasant Mount, PA 18453-0003
Reynoldsdale, Clyde E. Welsh, <i>Manager</i>	814-839-2211
Mailing Address	RR 2 Box 550, New Paris, PA 15554-9401
Tionesta, Larry E. Hines, <i>Manager</i>	814-755-3524
Mailing Address	HCR 2 Box 1, Tionesta, PA 16353-9729
Tylersville, Kenneth L. Slogaski, <i>Manager</i>	717-725-3965
Mailing Address	RR 2 Box 173, Loganton, PA 17747-9734
Union, William C. Shuey, <i>Manager</i>	814-664-2122
Mailing Address	9518 Route 6, Union City, PA 16438

BUREAU OF ENGINEERING & DEVELOPMENT

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Administrative Officer, Elizabeth E. Ebeling	814-359-5166
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Division of Construction & Maintenance, James I. Waite, <i>Chief</i>	814-359-5128
Fishing & Boating Facilities Design, Richard Mulfinger	814-359-5157
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State Headquarters	3532 Walnut Street, Harrisburg, PA 17109
Mailing Address	P.O. Box 67000, Harrisburg, PA 17106-7000
World Wide Web:	http://www.state.pa.us/Fish



Casting Lines

with
Dave Wolf

Is it Kiss and Tell?

The stream is steeped in tradition. A special place for a small gathering of anglers. It is an excellent stretch of water, to be shared only with close friends and those of the catch-and-release persuasion. The reasons are many, for most prefer a semblance of solitude and tranquility when they are practicing the art of angling. Overcrowding has sent many scurrying for greener pastures, and with the information network of today, "greener pastures," are shrinking at a rapid rate.

Finally found, if even for a year or two, until some camera-toting, notebook-carrying outdoor scribe discovers the place and your favorite stretch of water turns into a dance floor for neoprene waders filled with all sorts of characters. They tromp through your favorite stream, stuffing creels with wild or native trout, and leave when the easier fish are taken.

As an outdoor writer, guide and instructor of fly fishing, the whole thing turns into a head-scratching affair for me, if not a problem. We shoulder much of the blame, along with those who decide to print what the general angling public has told them they want: Where-to, how-to and when-to. My conscience evoked by the wrath of those who visit the places I have written of, along with my own ethical standards, has me doing less and less of this form of writing. I have passed on money-making articles that could have helped me sort through the maze of making a living in the writing world. To

date, for the most part, I have stood by my convictions, "for better or worse."

But then the tide changes, and groups that have chastised me in the past are inviting me to write about their favorite streams or lakes. The reason is that they are threatened or endangered by numerous workings of man. Suddenly, we are placing a dollar value on the recreational worth of a stream, river or lake, and comparing it to the value of whatever money-making scheme may endanger the waters they so loved.

Now, I am to tell the world of the value of the resource, how healthy populations of wild trout or native trout exist there. How many angler hours are spent on this watershed, and what worth it brings to the surrounding communities.

The worth of our aquatic resources, I maintain, is not a dollar-and-cents issue, but it is. It's the same dollar-and-cents issue that creates where-to-articles, only the stakes are far higher than a single paycheck, or a dozen, for that matter.

Still, nothing can survive without money, absolutely nothing, from the resource to the angler, from publications to the final link, the writer.

To be certain, it is a delicate balancing act and the answers are not clear. No, they are more like a silt-laden river after a violent storm. The dollars-and-cents issues go as deeply as how many fishing licenses are going to be sold in a single year—money that will be used for the study and then protection of our natural resources.



Opening Day, Bald Eagle Creek, Centre Co.



"Resource First" has long been the Pennsylvania Fish and Boat Commission's battle cry. How is this best served? If streams and lakes become so overcrowded that they distract from the sport of fishing, then the issue may be more of a social one. If fishing deteriorates because of overfishing, then it lies under the category of "Resource First." A stream, river or lake threatened by development or industry, certainly is a resource-oriented problem. Many believe that kiss-and-tell articles equate to more "friends" of that particular resource, for they have firsthand knowledge of the fishing there and thus are likely to support any movement to protect it from degradation.

On the other hand, many anglers want peace and tranquility when fishing. They are often the silent majority who quietly go about their business, and prefer that no hoopla be created over their favorite streams. They firmly believe that where-to articles have created overcrowding, at the least, and often believe that the fish populations have fallen because of overfishing. They particularly do not like articles that "go to the extremes," of mentioning particular pools on streams, or "secret" coves on lakes. They believe that only so many fish can be



Spring Creek, Centre County

taken on a given waterway without extreme protective measures, such as catch and release or reduced creel or size limits.

It has been my observation that such areas receive far more fishing pressure over the course of a season than does open water, under statewide regulations. I personally have witnessed anglers unable to find room to fish when the more famous hatches have transpired on some of the "Top 10" lists of trout waters in the Keystone State.

But I am not the wise man on the mountain, and I did not come up with any concrete answers to the questions that I have posed. Those in the business will point to survey after survey of their readers, that they in fact want more where-to articles. Such surveys do not reveal the depth of detail with which articles should describe certain areas, and I must assume that the answer lies somewhere within the fine lines of the description of a where-to article. Top-10 lists have become extremely popular in the pages of many magazines. That would seem to put an extreme amount of pressure on 10 waterways, when the list of good bass, trout, musky and other waters is extremely long. One must ask, who

decided on these lists of waters and what put them into the top 10? Do not most of us have our own top 10, for nearly every species we pursue—lists that differ like the seasons?

Like the wakes of a wind-blown lake the answers waffle in my mind. More anglers. Less time. Change in the economy, in social structure, in the ethics of the American people. Most want to experience something new and they want to know where the better fishing can be found. There is resentment by those who have found it, and many move on to another body of water until another such article appears. Fishing and recreational opportunities are measured in dollars and cents, not something often thought of when one needs an escape to the calming waters.

The answer, more than likely, lies in those users of the resource. If the surveys indicate that they were willing to find their own special places, magazines would print more experience pieces and more how-to articles. But who can fault an angler for wanting to know where the best fishing for bass, muskies, trout or whatever can be found? And if they use the resource wisely, then perhaps such articles

Do where-to-go articles lead to a greater response when a waterway is threatened, or do they degrade the fishing experience?

would be found to be no different than a travel brochure, telling us where to visit for food, lodging and entertainment in the Commonwealth.

For certain, it is a balancing act, not unlike your favorite rod and reel combination, a balancing act that we all need to consider.

The final word is yet to be written on the subject, and although I have talked to thousands of anglers, writers and guides concerning the subject, they admit to not having the solution to what many perceive as an injustice by the outdoor press.

The question remains, does where-to lead to a greater response when a certain body of water is endangered, or does the sunken path along the stream, created by wader-donned anglers, degrade the experience of fishing and chase as many away as it gathers? And as one last thought, should we as conservationists not be concerned about degradation of any waterway, no matter if we ever wet a line there or not?



Buying Smart

by Cliff Jacobson

Good grief! Have you priced canoeing gear lately? A thousand bucks is the starting point for performance canoes; seventy-five buys a low-end “efficient” touring paddle; and fifty is minimum for a trim lifejacket you can stand to wear.

Don’t put away your calculator yet: You need a carrying rack that fits the gutterless airplane-style doors of your new car (\$150); nylon straps for car-topping your canoe (\$20); two or three waterproof packs at \$150 each, a carrying yoke (\$75); and knee pads (\$20).

Whew! That’s enough for now. Extras like thwart bags and splash covers can come later when you have some extra bucks to spare.

Remember your partner: Double the prices on PFDs and paddles before you total the numbers.

Shocking, isn’t it? Two grand will get you started. Double that if you want the best of everything. Divide by two if you have the patience to wait for a good deal and do some simple fix-up work.

Where to begin

With the canoe, of course! And the cardinal rule is don’t buy new! Canoes depreciate about 10 percent when they leave the store, another 10 percent when they get their first scratch. The downward spiral continues as dings pile up. Age of the craft means nothing. Condition is everything!

In time, even the best-kept, most carefully paddled canoe will incur some nicks that drive its value down. So why not let someone else take the initial hits? Does this mean you have to learn to repair any canoe you buy? Yes, if you choose quick and quiet, high-performance Kevlar or wooden cruisers. Maybe, if you select a tough Royalex canoe. No, if you pick a heavy, nearly unrepairable poly-

ethylene canoe, or a noisy aluminum one.

Note that there’s an inverse relationship between high performance (paddling pleasure!) and durability. Lightweight, fine-lined canoes are easily damaged and easily repaired. But they are smooth and responsive—and like good sports sedans, they make you smile whenever you climb aboard. Heavy, thick-bowed canoes are solid battleships, but they aren’t much fun to drive. They are cheap to buy and maintain, so you’ll find a lot of them for sale. Good cruisers are a whole lot harder to find.

How to find your dream boat

Let’s say you prefer to paddle quiet picturesque streams. Any canoe will do, but a quick, lightweight Kevlar composite or wood-strip canoe is the one for you. You’ll want wood gunnels because they weigh up to 10 pounds less than plastic or aluminum ones and they don’t distort the curve of the hull. That’s why every high performance canoe in the world—whitewater, flatwater or in between—is trimmed in wood.

Maybe you should write an ad

The best canoes are not advertised in newspapers. They’re sold by word of mouth or are listed in the classifieds of canoe and kayak magazines and canoe club publications. However, a “wanted ad” in a specialty magazine or big city newspaper might pay off big, if you write it right. For example:

Don’t: “Wanted, inexpensive, good used family canoe.” This says you can’t tell a Hyundai from a Mercedes Benz and value price more than performance. If there’s a good Benz for sale just around the bend, the owner won’t call you!

Do: “Wanted, Lightweight Kevlar composite or Royalex cruising canoe.”

“Lightweight” suggests you prefer performance to durability. “Composite” says you know there are different Kevlar lay-ups and that some cost more than others. “Cruising” defines the breed (an efficient paddling hull). “Royalex” is stated with the knowledge that you know there are high-performance Royalex hulls—and you’ll consider one if the price is right.

Admittedly, you may not be able to write an effective ad unless you know canoes and canoeing, or someone who does. Any serious canoeist will be glad to help. You’ll get gracious free advice at most paddling shops.

Is it safe to buy a used canoe on the strength of a magazine ad? Usually, yes. Selling a good canoe is like parting with a vintage Porsche that you’ve driven for years. Serious canoeists love their boats, even the ones they are about to part with. With rare exceptions, they’ll tell you nothing but the truth.

Suppose you buy a canoe in Minnesota, and live in Pennsylvania. Isn’t it





Buying Smart

frightfully expensive to ship a canoe from Viking land to the Keystone State?

Yes and no. Some small transfer companies will carry canoes on a “space available” basis. But to keep the cost down, you must be willing to accept delivery at a place that’s convenient to the trucker—and it probably won’t be your home. I’ve had two canoes shipped to me by truck: In each case the charge was under \$150. I once bought a canoe that came by rail. Transit time was 27 days and the shipping cost was \$75.

There’s another option, if you’re very patient. Contact your nearest canoe dealer and ask if any of his suppliers also deliver canoes to Minnesota (the location of your used canoe). Companies that have their own delivery trucks may drop 10 canoes in Harrisburg, 15 in Chicago, 12 in Madison, Wisconsin, and then finish out in Minneapolis. It’s unprofitable to dead-head back to the factory, so they sometimes haul a competitor’s boats to retailers that are enroute to their point of origin. If there’s space on their trailer—and they’re going your way—you may be able to work a deal.

The bottom line is that a good used canoe is the way to go if you’re on a budget. About \$1,000 will usually buy an exquisite wood-trimmed Kevlar cruiser that will turn heads. A fair price for state-of-the-art wood-railed Royalex is \$650. About \$350 is reasonable for well-main-

tained polyethylene. If these prices seem high, consider that someone else has absorbed nearly all the depreciation. Do a little fix-up work (coming up next) and five years down the road you may be able to sell your canoe for more than you paid for it!

You can fix any canoe you buy

Replace broken seats, thwarts and yokes with new ones that you can buy at any canoe shop. Machine-caned seats are tough to repair. Most canoeists strip out the old cane and staple on attractive lawn chair webbing. The webbing is as comfortable as cane; it looks nice and it’s very inexpensive. Anyone can “web” a seat in 10 minutes—but don’t tell this to the seller.

Deep gouges in the gel-coat of a fiberglass or Kevlar canoe look awful, so be sure to show your displeasure when you haggle over price. Be aware that gel-coat is very easy to repair—a knowledgeable seller would have done it if he or she knew how!

Wood trim should be oiled, not varnished. Remove old varnish with an orbital sander, and then wet down the wood with water, which will raise the grain. When the wood has dried, sand it smooth, then wet it again and repeat the procedure until the surface feels silky smooth. Polish with 400 grit wet sand paper and 000 steel wool. Apply a thick coat of marine finishing oil to the wood with a cotton rag. Allow the oil to set for 20 minutes and then wipe it dry with a rag. A thin oily film—that will eventu-

ally dry “resin hard”—will remain on the surface.

Lightly “steel wool and oil” the woodwork in this manner once a month during the canoeing season. It’s a 10-minute job. Come November and you’ll have a work of art. This is all the regular maintenance that wood needs.

Paddles are pricey

Quick! Name the one thing that will most improve the handling and safety of your automobile. If you said “tires” you’re dead right. Good tires are expensive, and worth it. So are quality paddles. Don’t skimp here.

Granted, it takes a certain amount of attitude adjustment to rationalize spending \$100 or more for a canoe paddle. But once in hand, you’ll feel the difference. The best cruising and racing paddles are made from a careful blend of carbon-fiber, epoxy and other proprietary materials. They weigh 8 to 14 ounces (the lightest wood paddles weigh 20 ounces or more) and are as attractive as bituminous coal. Some people call these carbon-black paddles “ugly sticks.” In your hands they are beautiful!

Most canoe shops have a small selection of good blades, but the best ones are usually available only by mail. If you want to cut through the myth of paddle selection, call a canoe shop and ask (specifically) what the racers use. Then buy a lower priced version of their favorite blade.



PFDs—don't skimp here

Ever notice that canoeists most always wear their lifejackets, even when they paddle quiet ponds? “Canoeers” don’t wear them at all, even when the lake stands on edge. The reason is mostly stubbornness and the belief that swimming ability will conquer all. Of course, swimming ability helps, but it’s not a good enough reason not to wear a PFD. One reason why people don’t wear their PFDs can be attributed to cheap, ill-fitting life jackets. Tubular style (vertical ribbed) type III PFDs are the most comfortable you can buy, but they are expensive. About \$60 is not an outrageous price for a trim PFD that you will wear all the time. Upsetting experiences are part of the learning curve: Push the limits of your skills and you will tip over! Wear your PFD.

Cartop carriers

You’ll save big bucks if your car has rain gutters. Simply buy four “Quick-n-Easy” load brackets, bolt on a pair of two-by-fours and you’re set for the road.

If your vehicle has airplane-style doors you’ll need an expensive rig. You can save money if you choose a set-up that accepts inexpensive tubular steel conduit that you can buy at hardware stores. Purchase the appropriate load brackets for your car and get the conduit elsewhere. Tie or tape scrap carpeting around the conduit so the rails of your canoe won’t be grooved. Nylon ropes are cheaper, more convenient and as reliable as tie-down straps—that is, if you learn to tie a

trucker’s hitch. Any modern canoeing text will show you how.

Any cheap pack will do

You don’t need expensive waterproof packs. Any soft pack or duffel bag will do, if you use the “sandwich” method to waterproof your gear.

Procedure: Place the item in a fabric bag which need not be waterproof. Then, put the bag inside a strong plastic bag. Exhaust the air inside the plastic bag (give the bag a hug), twist the mouth, fold it over and secure it with a loop of shock-cord. Now put the sealed “double bag” inside another fabric bag. Note that the delicate plastic liner—the watertight barrier—is sandwiched between two layers of abrasion-resistant material. This method works with any pack or bag.

Little things mean a lot

Little things, like a carrying yoke, knee pads and thwart bags, add to your comfort and the value of your canoe. You can make all these items in half a day.

Portage yoke

Carry your canoe alone from the garage to your car and you’ll want a good portage yoke. Cheapest—and best—way to go is to buy a curved yoke bar (about \$20) at a canoe shop. Cut two 4" x 8" pine blocks and pile polyurethane foam on each block. I use “pillow padding.” Compress each pad to about three inches and


staple plastic upholstery material on top. Bolt the pads (drill bolt holes before you cover the pads) to the yoke bar a shoulder-width apart. You’ll save \$30 or more!

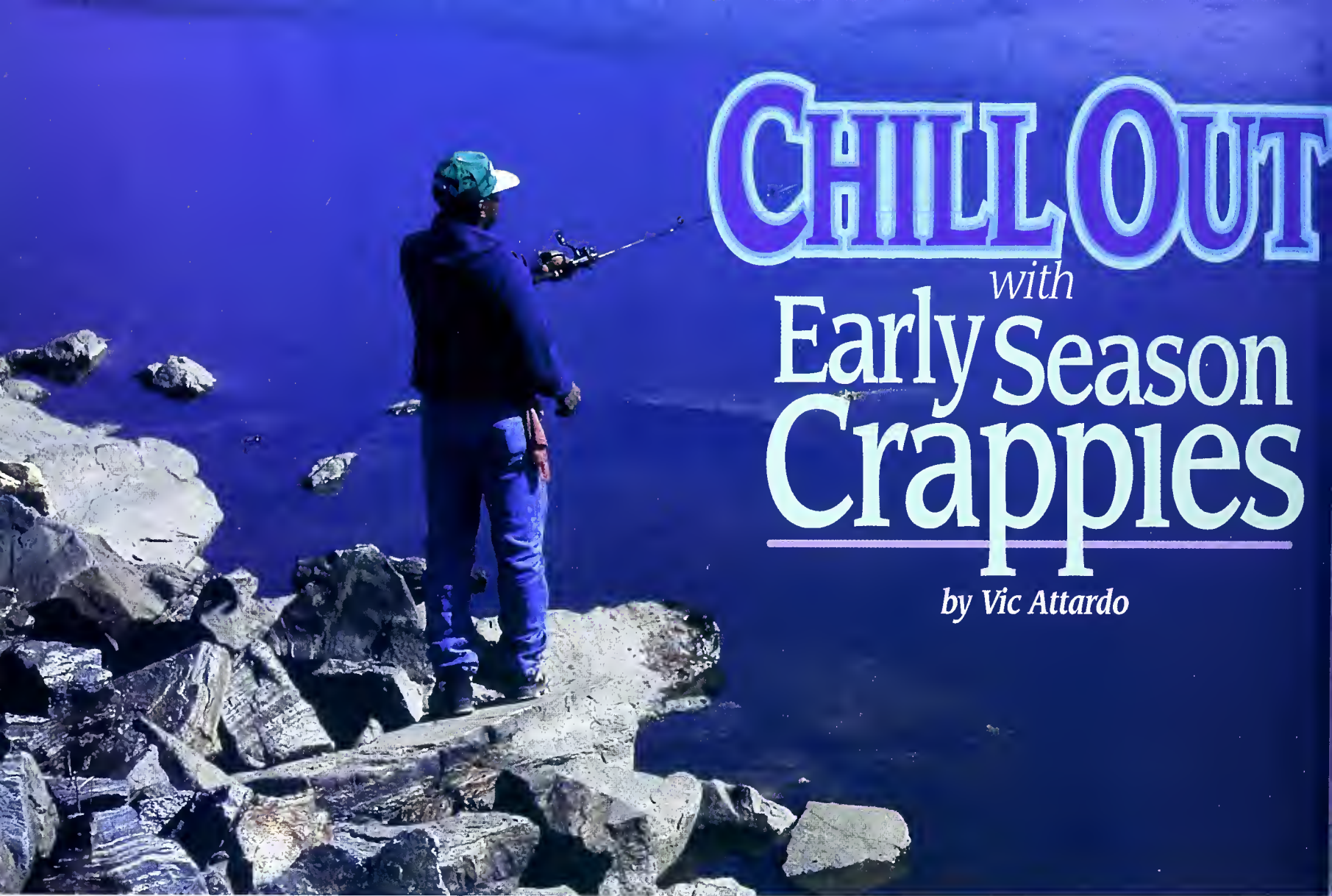
Knee pads

Commercial knee pads cost about \$5 apiece. You’ll need four plus a half-pint of waterproof adhesive. I prefer Weldwood contact cement to glue them in a canoe. A less expensive option is to purchase a closed-cell foam pad from a camping store. Cut the pad into knee-pad size squares and glue the squares to the floor of your canoe.

Thwart bags

Thwart bags are like saddle bags. They tie to your horse and hold small items you use a lot—like sunscreen, bug dope and a water bottle. Commercial thwart bags are pricey, so you may want to make your own. A small nylon brief case or fanny pack works fine. Sew straps on the case or pack so you can secure it to a thwart.

All in all, don’t rush into anything! Patience pays off big when searching for the canoe of your dreams. The canoe is your most important purchase; next are PFDs and paddles. Serious canoeists often trade canoes every few years. But they keep their PFDs and paddles forever—or until something “better” comes along. 



CHILL OUT

with Early Season Crappies

by Vic Attardo

The water is cold. The weather is cold. But for thousands of Pennsylvania anglers, the period known as “ice-out” is the first chance to dispel months of cabin fever and fish the state’s open waters.

If you’re not into ice fishing—and I don’t blame you if you’re not—the slow melt that occurs anytime from late January through March should signal your return to rod and reel for the new season.

What, you say, you’ve never fished in late winter? You wait until the opening of trout season to pursue the piscatorial clan! Well, somebody has to let you in on a little secret: You’re missing a great deal of good fishing.

After being bottled up under the ice for weeks, or months, our Pennsylvania gamefish are terribly hungry. What’s more, many will soon have mating and nest-building on their minds and they need a good meal to build up their strength.

With such a strong appetite, these gamefish become real pushovers for late-winter anglers. Plenty of largemouth bass have shown me why ice-out ranks with the fall season as the most productive times of the year. Where pike fishing is

supreme, ice-out is also hot in shallow, spawning coves. And if you’re favorite target is crappies, you’ve probably reeled them in, one after another, when they gang up near future spawning grounds.

In the southeast corner of the state, fishing for ice-out crappies is a major industry. At some prime locations anglers sometimes stand shoulder to shoulder where the crappies congregate. The action can become so furious, you’d swear you were in a shooting gallery.

What and when is “ice-out”?

Somewhere along the line, a writer should define his terms and now is a good spot to explain what is meant by the designation “ice out.” For starters, the term does not necessarily mean there is no ice on a lake. Frequently, ice-out is a time of retreating ice. While you’re fishing the melted edges of the shoreline, you may still see anglers standing over the last vestiges of frozen water. You may even spot a paper-thin sheet of ice across a portion of the lake—a sheet that until a few days ago was perfectly safe to walk on. You may also encounter, as I did last year on Marsh Creek Lake near Downingtown, a slight re-freezing of the

water after a return to cold weather in mid-March.

Unless you know a couple of hundred different words for ice and snow as the Eskimos do, all of these situations qualify under the general term of “ice-out.”

For anglers, the most accurate basis for labeling this short season is water temperature. The lake must have been frozen over with several inches of ice, but now a water temperature in the upper 30s and possibly up to 41 or 42 degrees is the real test. These higher temperatures are likely in coves, while lower temperatures remain on the main lake.

For a couple of years I’ve been hearing the advice that anglers should concentrate their early season fishing in an area where the sun shines in a particular direction—I can’t remember exactly which direction. This information has been particularly prevalent in bass fishing circles and, like a false rumor, it is frequently believed. Unfortunately, it has no basis in fact. The structure of a given area—particularly its depth and future spawning potential—governs whether or not a cove or bay is an early season hotspot for bass, crappies, pike or whatever, not the direction of the sun.

Lakes Redman and Williams have been taken off the Conservation Lake special regulations for 1997. The daily limit on panfish returns to 50 fish.

tensive flat near the shoreline. The flat, consisting of a substantial area of moderate depth, is a key element. Even in the early season it must offer some weedy cover. Ice-out crappies relate to emerging and invigorated weeds as I relate to hot chocolate while winter fishing.

I get suspicious of an area's potential to hold early season calicoes if I'm not occasionally snagging some yellowed grass and fresh new growth. There are a few deep-water situations where ice-out crappies are found away from weeds, but for the most part new and old weeds spell crappies.

Lake Ontelaunee in Berks County is one of the prime ice-out locations in the southeast and it is rich with this late-winter growth. Last year, from late February through March, anglers lined up along a railroad bed where a small feeder

stream enters the lake—classic early season structure. A few feet out from the shoreline lies an abrupt dropoff caused by the meandering creek channel and the beginning of an expansive flat. The demarcation between the shallow and deep water is clearly visible as a change in water color. Place your offerings on the shallow side of the line and you can sit half a day without a bite. Cast to the deeper flat with the fresh and old weeds, and you get constant hits.

Crappie Locations in the Southeast

1. Francis Slocum Lake, Luzerne County.
2. Mauch Chunk Lake, Carbon County.
3. Beltzville Lake, Carbon County.
4. Memorial Lake, Lebanon County.
5. Lake Ontelaunee, Berks County.
6. Lake Towhee, Bucks County.
7. Lake Nockamixon, Bucks County.
8. Speedwell Forge, Lancaster County.
9. Blue Marsh Lake, Berks County.
10. Hopewell Lake, Berks/Chester County.
11. Lake Williams, York County.
12. Lake Redman, York County.
13. Octoraro Reservoir, Lancaster/Chester County border.
14. Lake Luxembourg, Bucks County.

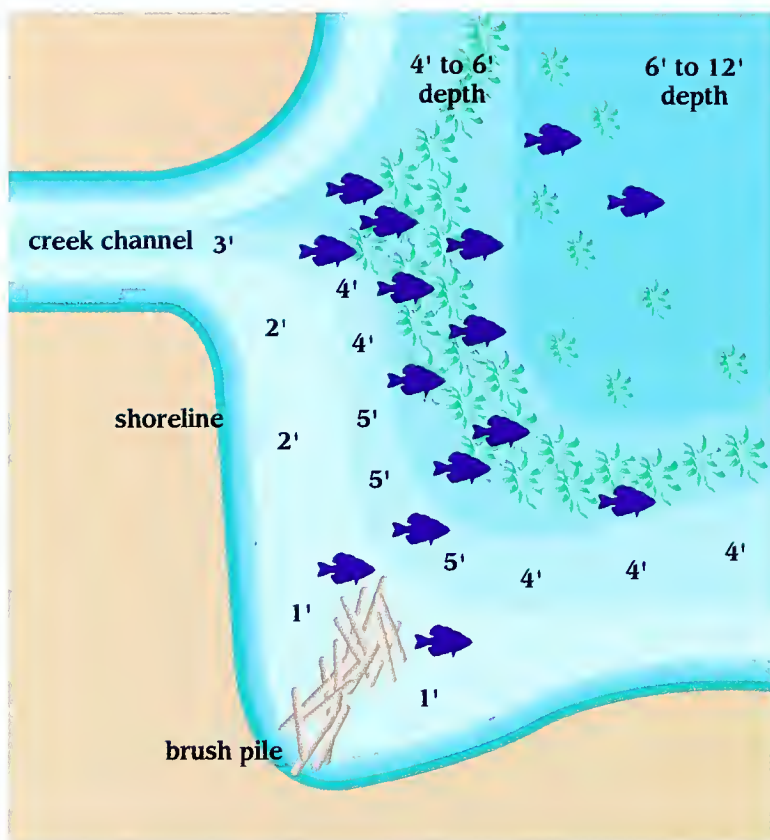




A local bass pro I've fished with on three different lakes during ice-out is successful in shallows facing every direction on the compass. The same thing goes with ice-out crappies. Two exceptional lakes in the southeast have top coves located in opposite corners of the earth. On bright days, the sun shines on both with equal intensity and duration.

Looking for structure

Fishing for ice-out crappies is often a shoreline activity, but one shoreline is often better than another. A comparison of these early season hotspots shows each forming the border of a bay off the main lake. The bay is no more than 12 feet in depth with a gradual dropoff and an ex-





 = WEEDS  = CRAPPIE LOCATIONS

At Marsh Creek a similar structure offers excellent ice-out calicoes. Anglers line a bridge abutment and the rip-rap on the Little Conestoga Road causeway. A creek enters the cove under the bridge and the crappies set up near the rip-rap and out in the flats.

Another ice-out hotspot, Green Lane Reservoir in Montgomery County, breaks the mold when it comes to early season fishing. At this impoundment, some of the best crappie action takes place in deep water near the center of a two-lane bridge. As soon as the lake is free of ice, you'll see small boats anchored near the long Knight's Road bridge off Route 663.

A few weeks later, anglers congregate at the Walt's Road cove, which has more traditional structure, but the earliest action is around the bridge in deep water. At Knight's Road there is no creek entering the lake—though an old creek bed runs under the bridge—and the lake is notoriously weed-free. Still, the deep-water bridge is a known hotspot where calicoes hold an ice-out convention most years.

Bigger fish

I had always considered ice-out fishing a daytime activity. In late winter, the sun doesn't crest the eastern hills until 7 or 7:30 a.m., so I'd thought it was okay to get to the lake by 9 o'clock to fish the morning bite. I usually stayed until about 3 p.m. when, cold and satisfied, I'd call it a day. I caught plenty of fish, but most of them were pinheads.

Then I met a modest angler—meaning, he doesn't want his name used—who was catching much larger crappies. The biggest slice of his secret is he doesn't get to the lake until late in the afternoon and he fishes well after dark. He works the same spots as other anglers, but when the sun goes down, he uses only live bait. When I saw one of his two-pound crappies last March, I was sold.

As I've learned, the switch to night ice-out fishing requires three things: The use of minnows instead of jigs, a lighted bobber instead of a pencil or weighted bobber and a larger thermos of your favorite hot beverage.

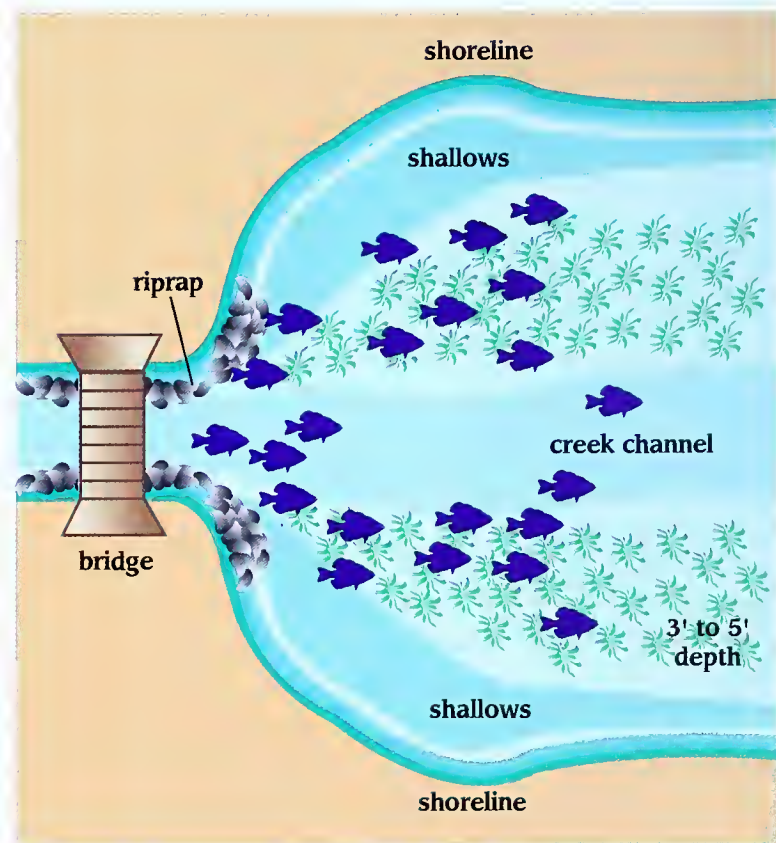
Before you get the impression live bait is the key to catching bigger ice-out calicoes, let me dispel that misconception. The same minnows that catch lunker crappies in the dark, still only attract smaller fish in the daylight. The major consideration for bigger crappies is timing.

According to the nameless angler, larger females move into the shallow waters to feed at night. Sunset and the first few hours of darkness are the best time to hook one of these silvery slabs, but after 8 or 9 p.m. fishing usually dies out until the next morning. While there is still light in the sky, jigs are still effective on these larger crappies, but after dark, minnows are the only bait that works because they produce vibrations the crappies can feel. The lighted bobber and the hot thermos are for the angler's assistance.

Tackle, equipment

Whether you fish for crappies during the day or night, the tackle is about the same. A light graphite spinning rod in the 6-foot range with an appropriate spinning reel is standard. While 6-pound-test line is acceptable, 4-pound test is better. Some anglers swear that the switch from 6-pound line to 4-pound line has increased the number of hook-ups. Whether the crappies are that finicky or a jig dances better off the lighter line is a matter I've often heard argued. For the record, I use 4. I once tried 2-pound test but found it too troublesome.

Jig size may be the single most important tackle consideration to make. Ice-out crappies don't like big jigs. Once, as part of a learning experience, I tried jigs crafted on size 6 and 8 hooks and I sat fishless. But when I switched to the 10s and 12s weighing 1/16-ounce and 1/32-ounce, I loaded up.



 = WEEDS  = CRAPPIE LOCATIONS

On any given ice-out day, jigs work just as well as live bait, so I don't bother with the scaly stuff until dark. However, all my jigs carry 3/4-inch to one-inch curly tail grubs. Anything longer than an inch and you're just inviting short strikes.

If you use a basic color scheme, the hues are not as important as size. Standard colors for stained water include chartreuse heads with chartreuse/metal flake tails and pink or red heads with white tails. On one Pocono lake I visit, the crappies demand a plain jig head with a smoke tail grub. They won't touch chartreuse, pink or white but on a cloudy day they will take an all-black jig and grub. I believe their preference for smoke has something to do with the tannin color of the water, but that's only a guess.

The use of a bobber is important to crappie fishing but instead of giving another lecture on how to rig a slip bobber, I'd rather direct you to the sidebar on weighted bobbers for something different. Lighted bobbers that operate with small batteries are necessary at night. The crappies are not bothered by the pinhole of light these bobbers emit.

As noted, you will have to deal with weeds when crappie fishing. A trick for a grassy area is to rig a weedless jig. Using a curly tail worm, insert the hook into the head of the grub and bring the hook out in the first segments. Turn the grub and stick the point back into the side as you would when Texas-rigging a bass worm. Push the point of the hook through the worm so it is barely exposed. You now have a weedless jig.

Position the jig so that it rides about 18 inches under the bobber. If the water is over five feet in depth, set the jig so that it rides about two feet above the weed tops. Calicoes will come up from the grass to grab the lure, but don't make them travel to the moon to find your offering. For the most part, don't fish down in the weeds. This causes your jig to foul and the crappies won't see it as well.

After rigging your tackle and selecting the right location, your next concern is presentation. Surprisingly, a little finesse at the right time can improve your catch even for these rather unfussy fish. On windless days twitch the bobber to make the jig perform a dance; if there is even the slightest wave action, the bouncing bobber should do the work for you. Also, you may have to move the jig a few feet across the weed tops until it sits over a pocket where the crappies will fly up out of the grass to attack your lure. This is especially true in weed fields with very uneven tops.

One other item deserves mention, and that is the use of the curly tailed metal-flake grubs. After a couple of fish have gobbled the soft plastic, I find it loses its luster and effectiveness. A dull-colored grub just doesn't excite ice-out crappies like a bright, shiny one, and I've seen my catch rate slow dramatically until I replaced the tarnished tail with a fresh one. On sunny days the crappies relate to the gleam of the metal flakes. But please don't toss the used grubs on the ground. Birds relate to them even if the crappies don't, so take the discarded lures to a trash can.

At times an ice-out crappie can be an easy fish to catch. But when they're turned off, they can be as tough as a trout in a trico hatch. I don't dream about ice-out fishing as I do spring shad and summer smallmouths, but since late-winter crappies may be the only game in town, I've learned how and where to play. At least they get me out of the cabin and give me a chance to chill out after a long winter.

The New Bobbers

For years I used the standard stick bobbers when fishing for ice-out crappies, but no longer. For the past two seasons I've found something a whole lot better.

With stick or pencil bobbers there's always a mess of hardware on the line. Besides the actual float, you must use a line stop and a bead above the bobber plus a galaxy of splitshot below the float to keep the offering at the proper depth. The system catches fish—that's not its drawback—but it casts very poorly. As the spindly float is thrown across the water, it cartwheels through the air, reducing casting distance. All of the beads and splitshot also create a wind drag so I can never toss them as far as I sometimes want.

This casting problem came to an end when I tried a type of hard-foam bobber I found in a Reading tackle shop. Containing an internal weight, these bobbers are unceremoniously referred to as "weighted bobbers." They're part of the cottage tackle-making industry and are sold, without labels, in most fishing shops. Whether they have names or not doesn't matter—I can now cast 50 to 60 feet with a weighted bobber with no problem.

The best of these bobbers I've tried comes in two pieces. The main body of the float is egg-shaped, and as noted, made of a hard foam. The core of the egg is hollow from the top of the egg to the bottom. The second component of the bobber is a removable lead rod with a small hole on both sides at the base of the rod.

The bobber is rigged by passing the line through the open core of the float. The line is then passed through the holes in the lead and the hook or jig is tied below. After determining the depth at which you want to fish, you simply set the line below the lead and push the rod back into the float, locking the line in place. With all the ballast centered in one spot and no dangling spitshot, the weighted bobber casts like a bullet.

They have another advantage as well. To change the depth you're fishing, it's easy to remove the lead rod from the core of the egg and reset the amount of line below the float.

When I first tried one of these weighted bobbers I was concerned that the line pinched inside the lead and egg would somehow be weakened and eventually break. After hundreds of casts and hundreds of panfish I can happily report that this has not happened once. However, I should note that on occasion I've had to file a sharp edge off the lead rod, which probably would have resulted in a breakage had I not "finished" the float.

Another concern voiced to me by a conscientious angler was that a weighted bobber might not be as sensitive in detecting a strike. Here I can report that the weighted bobbers are just as sensitive as stick bobbers. What's more, the high-riding floats are a lot easier to see on the water than the pencil bobbers.

On light to medium spinning tackle the weighted bobbers are a pleasure to use. Sold in two or three sizes, it's easy to match the proper bobber with your equipment and the fish you're pursuing. I still have a few plastic and stick bobbers in my tackle box, but I don't use them anymore and one of these days I'm going to toss them out or give them away.—VA.



Big Bass Regs

on the
Lower Allegheny River

by Mike Sajna

In the wake of the success of Big Bass regulations on the Susquehanna River in recent years, and because of a desire to improve the quality of bass fishing on the Allegheny, the Fish and Boat Commission in 1995 opted to enact Big Bass regulations on Pool 3 of the Allegheny River. Pool 3 extends from Lock and Dam No. 3 in Cheswick above the Turnpike bridge upstream almost 10 miles to Lock and Dam No. 4 at Natrona. It is the first section of a western Pennsylvania river with Big Bass regulations.

According to Rick Lorson, Area Fisheries Manager for the Southwest Region, Pool 3 was targeted for the regulation change as a result of a 1989-1991 study of fish populations on the lower 40 miles of the Allegheny from Clinton downstream to Pittsburgh. The survey showed smallmouth bass to be the dominant species in the sampled catch. The length distribution, however, revealed that heavy harvesting might be limiting the number of fish over 12 inches in the lower river.

Although the number of bass over 12 inches is not large anywhere in the lower river based on survey results, Lorson said that Pool 3 and Pool 4, which covers just over 6 miles between Natrona and Freeport, have the largest bass populations and best growth rates. Pool 4, whose habitat has not been disturbed by heavy commercial dredging for gravel, actually is somewhat better than Pool 3 when it comes to total numbers of bass.

A creel survey conducted by Fish and Boat Commission personnel in 1993 also found the two pools to have similar angler use rates. They both average approximately 47 angler hours per acre of water per year, which Lorson calls "fairly heavy." Pool 3 contains 1,220 acres, while Pool 4 covers 731 acres.

"We felt that either one would probably work with the Big Bass regulations to improve bass numbers and sizes, but we chose three because of better access," Lorson says. "We have two of our [Commission] boat ramps on Pool 3 [at Springdale and Tarentum]. Pool 4 has only the Freeport launch ramp, which reduces that use potential a little bit."

Implementation of special regulations early on drew strong opposition from bass tournament

The Allegheny River's Pool 3, Cheswick to Natrona, is the first section of a western Pennsylvania river under Big Bass regulations.



anglers who were using the Commission's Springdale Access area as their weigh-in site. Big Bass regulations do not prohibit tournaments, Lorson points out. However, they do prevent anglers from possessing fish under 15 inches, which means that tournament fishermen cannot bring bass under that size into the weigh-in site even if they were caught in a pool upriver or downriver with conventional regulations.

Complaints have decreased over the past two years since the regulations were enacted, according to Lorson and Don Orlowski, a bass angler from New Kensington, which borders Pool 3. Some tournament anglers, though, continue to be angered by the change, according to Rick DeMichele, an owner of Allegheny Bait and Tackle in Tarentum.

"They complain because tournament rules [not Fish and Boat Commission rules] don't allow them into the pool," DeMichele says. "If they made the limit 15 inches everywhere on the river there wouldn't be any problems."

Lorson responds by noting, "Any time there is a regulation change, there is going to be a certain segment of the fishing population that doesn't like it. From our angler opinion work, though, we found the majority of the people were in favor of 15 inches or catch and release."

Although the angler opinion survey conducted by the Commission along Pool 3 and Pool 4 in 1994, revealed substantial support for a change to Big Bass regulations, it also uncovered some contradictory opinions. According to the survey, a majority of anglers, 68 percent, said they liked the regulations in effect on the area of the Allegheny where they fished. But 61 percent of those same anglers also said they liked the idea of Big Bass regulations applying to the section of river they fish.

When anglers surveyed were provided with a choice of fishing for bass in an area with conventional regulations, Big Bass regulations or catch-and-release regulations, they directed 80 percent of their trips to areas with more restrictive regulations. The highest portion of anglers surveyed, 44 percent, favored catch and release, followed by Big Bass at 36 percent, and conventional regulations at 20 percent.

"Surprisingly," Lorson notes, "the highest percentage of anglers said they wanted to go to catch and release. We don't even have catch and release for smallmouths, except for Dunkard Creek,

a stream in Greene County. That tells me that the vast majority of bass anglers want to be more restrictive."

One reason Lorson thinks so many bass anglers today favor catch-and-release or Big Bass regulations over conventional regulations is because of seeing catch and release practiced on fishing shows. Another reason is that anglers are learning that "satisfaction" for fishing does not have to include keeping fish. "That's helping the bass fishing today regardless of where it is," he says.

Tournament anglers also were vehemently opposed to Big Bass regulations on the Susquehanna River, according to Bob Clouser, of Middletown. The big complaint there, he says, was that no tournaments could be held in the special-regulation section for two or three years, until fish grew large enough to bring into the weigh-in site. "They didn't want to give it a chance," he notes.

If anything, tournament anglers on the Susquehanna River had even more reason to complain than those on the Allegheny, since the first section of that river with Big Bass regulations was 38 miles long, compared to less than 10 miles on the Allegheny. Improved catches brought about by the change, though, have now made tournament anglers some of the strongest supporters of Big Bass regulations on the Susquehanna. There are more tournaments than ever held on the river.

"In fact, I think they're holding too many tournaments here now," says Clouser. "All these big fish are just pulling everybody in. You just would not believe the amount of fishermen on the river now compared to when the limit was 12 inches."

Clouser estimates that 300 to 400 boats a weekend use the Susquehanna's Big Bass water, which was extended this year. It now runs from the FabriDam in Sunbury near the confluence of the North Branch and West Branch downstream to Holtwood Dam in southern Lancaster County. Clouser won't even make a guess about the number of shore anglers.

"This is the most used section on the Susquehanna River and the 15-inch limit is holding up the fishing," he says. "Even under all that pressure, it seems like it's holding its own."

By the second season of Big Bass regu-

lations, Clouser and his clients began to notice an improvement in the numbers and size of bass caught in the Big Bass section of the Susquehanna. That central Pennsylvania river, though, is far more fertile smallmouth water than the Allegheny. Lorson does not expect to see any real improvement along Pool 3 of the Allegheny until the regulations have been in effect for four or five years. They are now approaching their third season.

Even though Pool 3 showed an increase in bass during the most recent survey in 1996, Lorson attributes that more to the low-water years of 1991 and 1993 than Big Bass regulations. Low water improves the survival rate of young-of-the-year fish. Fish from the drought year of

1991 are now in the 13-inch to 16-inch range, while fish from the low-water year of 1993 should be in the 8-inch to 14-inch category, according to Lorson.

Lorson cautions that anglers might even see the number of bass they catch in Pool 3 go down before it goes up. "At Yellow Creek Lake in Indiana County, where we also have Big Bass regulations, we checked for the first time three years after the regulation change, and the number of bass had gone down. But in 1996, we went back, five years after the regulation change, and the numbers were favorable—that is, the response time and magnitude varies depending on the type of water where a regulation change takes place.

Both Pool 3 and Pool 4 will be surveyed in the same areas over the next three years. Then a creel survey will be conducted in 1999 to determine catch rates and angler opinions and a final decision will be made about Big Bass regulations on the lower Allegheny River.

"Our feeling is that we are going to be able to improve that bass fishery in terms of numbers of fish available, which in turn is going to lead to higher catch rates, higher levels of satisfaction for anglers and larger fish," says Lorson. "If we can do that, then we will have succeeded. If not, then we will have to determine if it is the right thing to do. Maybe we'll find that 12 inches and 6 fish per day is the way to manage it. In any case, we will have a sound basis from our data for decision-making."



George Harvey

Dean of American Fly-Fishing

by Walt Young

Pennsylvania enjoys a long and rich history of fly-fishing for trout. Much of this grand heritage can be attributed to the quality and diversity of all those resources that comprise the state's trout fishery. Pennsylvania fly-rodders have ample opportunity to pursue their favorite quarry in waterways ranging from placid limestone creeks on valley floors to tumbling mountain streams, wide rivers to tiny, headwater brooks.

Pennsylvania's trout waters have also served as the classroom to some of the greatest anglers ever to cast a fly. Fortunately, many of them have, in turn, passed on the lessons learned here to the benefit of other fly-fishermen all over the world. But when it comes to the one who has directly influenced more beginning fly-tiers and fly-fishers, George Harvey stands alone at the top of the list.

Harvey, a native of DuBois, turned 85 last November. When he makes his first cast on April 12 this year, it will mark 79 straight years he has fished on the opening day of trout season. He caught his first trout on a fly at the age of 6 and began tying flies when he was around 10. Learning to tie, however, was not all that simple back then. He once wrote that when he started, "fly-tiers were just about as scarce as three-pound brook trout are today. The few professionals who knew anything about the art were so secretive that it was almost impossible to learn anything except what one could figure out for oneself."

And Harvey did figure it out. Many times the only way to learn was to care-



George Harvey, 85, is responsible for showing thousands of people how to fish and tie flies.

fully take apart a particular pattern to see how the fly was constructed. Good flies were not cheap or plentiful in those days, so he paid close attention when he could afford to sacrifice one occasionally. It all paid off, though, and young Harvey made himself into an accomplished fly-fisherman and fly-tier.

The event that launched Harvey's career as fly-fishing's most prolific teacher occurred almost by chance on the first day of trout season in 1932. That spring, Harvey was a freshman at Penn State, majoring in ornamental horticulture. During a freshman orientation session months earlier, Ralph Watts, Dean of the School of Agriculture, counseled his

students about the value of hobbies and recreation in molding a well-rounded individual. Watts was an avid fisherman and offered his help to any of the young men wishing to learn his favorite sport.

Remembering this offer, Harvey appeared at the dean's office the afternoon before opening day and asked to go fishing with him the following morning. Watts told Harvey that he would be glad to take him fishing—but not tomorrow. The dean explained that opening day was special, and he wouldn't be able to devote much time to helping anyone then. Harvey quickly informed him that he wasn't looking for help. All he needed was a ride to the stream. Apparently, young Harvey's passion for fishing touched the dean, and dawn

found the two of them en route to Spring Creek, a few miles from campus. Watts dropped off Harvey and proceeded downstream a mile or so to his favorite spot.

Even in those days, Spring Creek held a good population of wild brown trout. Harvey began fishing with a pair of wet flies, skillfully manipulating his offerings in the chilly April currents. The fish responded well. By the time he had fished his way downstream to meet the dean, Harvey had managed to capture his limit, which at that time was a liberal 25 trout. Dean Watts greeted Harvey by proudly holding up the two small brook trout he had taken that morning. His pride disappeared when his young companion unhitched his large wicker creel and spilled a mound of hefty brown trout on the bank beside him.

"Well, I'll be Joe-Dogged!" Watts exclaimed.

"Wait," Harvey told him, "you haven't seen the big ones yet." And with that, he reached into the back pocket of his vest and produced four lunker browns too large to fit in his basket.

The dean could scarcely believe what he was witnessing. He was further amazed to learn that such a catch had been made with flies that early in the season. There was no doubt that this brash, young student was indeed something special when it came to fishing. Shortly thereafter, it was Watts who sought out Harvey to ask if he would be interested in teaching him and some other faculty members fly-tying and fly-fishing. Harvey was happy to oblige.

Harvey's impromptu angling classes were so popular that he began teaching a formal angling and fly-tying course in the spring semester of 1934, the first of its kind ever offered in the United States. It continued as a non-credit course until 1947, when it was elevated to a full-fledged, two-credit course, Phys. Ed. 109. The concept of these college-level angling classes proved so successful that they became part of the Penn State Extension Service curriculum. Harvey conducted 72 angling courses in 68 cities throughout Pennsylvania.

When Harvey retired from Penn State in 1972, he was responsible for instructing over 35,000 students. No one in history has introduced so many to fly-fishing and fly-tying. It is also ironic that his original major, ornamental horticulture, is no longer offered at Penn State, but the angling course he started 65 years ago with the help of Dean Watts has been offered continuously since then.

In the late 1940s, Harvey further broadened the scope of his instruction when he wrote a series of articles on basic fly-tying for *Pennsylvania Angler*. They were so well-received that the Conservation-Education Division of the Pennsylvania Fish Commission combined the entire series into a 24-page booklet titled *A Simplified Course in Fly Tying*. Harvey's masterful instruction along with the detailed illustrations of James Cartey made it one of the best how-to fly-tying manuals of its time.



Just how many fly-tiers got their introduction to the craft by way of that popular publication would be impossible to estimate. But gauging from the fact that the Fish Commission distributed thousands of copies at no charge each year until it went out of print sometime in the early 1970s, the number of budding tiers influenced by it had to be considerable.

After a short hiatus, the Fish Commission republished a revised and expanded version of Harvey's fly-tying booklet in 1976. Now a 60-page handbook, it contained substantially more fly-tying instructions than the original along with a section on fly-fishing for trout and was titled, appropriately enough, *Techniques of Fly Tying and Trout Fishing*. This edition sold for a nominal \$1.50 and also enjoyed widespread distribution for many years.

Harvey's book, however, was destined for yet two more editions, both titled *Techniques of Trout Fishing and Fly Tying*. One was published in 1985 by his friend, Buck Metz, of Belleville. Harvey's knowledge and advice had been helpful to Metz when he began breeding chickens specifically for dry-fly hackle. By the early

1970s, Metz had developed a strain of bird that produced hackle of unprecedented quality. He distributed Harvey's book for several years through the same dealers who sold his feathers. The current version was published in 1990 by Lyons & Burford of New York and marks the first time Harvey's work was offered in a hardback edition.

While he has instructed so many in the basics, Harvey's contribution to fly-fishing is not strictly at the entry level. Many of today's top fly-fishermen, such as Joe Humphreys, Gary Borger and Lefty Kreh, frequently credit Harvey's ideas on casting, leaders and fly patterns for helping them perfect their game. Harvey has fished with and tied flies for dozens of other celebrities, including two presidents, Eisenhower and Carter. He has been a frequent fishing companion and instructor to the Carters, who come to central Pennsylvania each year to fish Harvey's beloved Spruce Creek.

When Dean Watts recruited Harvey to teach those first fishing and fly-tying courses so many years ago, his intention was to provide guidance in activities that people could participate in all their lives, not just in their youth.

Undoubtedly, the dean's idea succeeded far beyond anything he could have imagined. Harvey has served as mentor for at least three generations of anglers and fly-tiers. But possibly that is only a part of his legacy to the sport.

Several years ago, Harvey was invited to be the guest of honor at a Trout Unlimited banquet in his boyhood home of DuBois. Dozens of those in attendance stood in line to have him autograph copies of his book or just to chat, as one gentleman did.

"I took your fly-tying course at Penn State back in the '40s," he began. "I'm retired now myself so I have lots of time to fish. The best part is my grandson likes it, too, and I've been teaching him to tie flies."

A former student had passed the torch to yet a third generation. Scenes like these are not uncommon anytime Harvey is present at a gathering of anglers. And maybe that is the best possible tribute to the man who is often affectionately referred to as the "Dean of American Fly-Fishing."





Paradise Found

by Dan Tredinnick



Fisherman's Paradise, Spring Creek, Centre County, around the early 1950s.

If there's one universal truth about fishing, it is this: Every angler has one particular spot that's favored above all others. From the world traveler to the kid with the cane pole at the local creek, anyone who has ever dipped line into water has found one particular piece of water to prize as a little piece of paradise. There is no set criteria used to determine such a place; its choosing is as individual as the angler who settles upon it. Invariably, it is from here, at these select spots, that the best memories take form.

More often than not, the location of a favorite fishing hole is a secret jealously guarded. But for nearly three decades, there was one mile-long stretch of stream that was the preferred destination of tens of thousands of anglers. Nestled in the heart of the Commonwealth and full of fish as fat as footballs, this stretch of Spring Creek, Centre County, came to be known by all simply as "Fisherman's Paradise."

The Paradise got its start as a working streamside laboratory. In the early 1930s the Pennsylvania Fish and Boat Commission (then known as the Board of Fish Commissioners) undertook the installation of numerous stream and habitat improvement devices in a section of Spring Creek adjacent to the Bellefonte Hatchery. The site was well-advertised with the hope that curious anglers would visit the demonstration project and later build similar improvement structures on other waters.

The idea was good, but public response was apathetic at best. So a decision was made that would quickly change the very nature of the project and turn sleepy Spring Creek into the epicenter of a trout fishing explosion.

In 1934 the Commission decided to stock trout in the demonstration area for public fishing two months a year. To ensure improved turnout, not just any fish were stocked. No, only lunkers went into the creek, older trout that had once served as brood stock. A new slogan, "If you want to catch more fish - kill less," was adopted for the stream and fairly conservative regulations were adopted: Only fly fishing with barbless hooks was permitted, anglers could creel just two fish (the limit was later lowered to one fish) and no individual was permitted to fish in the stream more than five days per year. Wading was prohibited, as was Sunday



From 1934 to 1961, only fly fishing with barbless hooks was permitted at Fisherman's Paradise. Wading was prohibited. Visitation grew from a handful of anglers to more than 50,000 annually. Large crowds required construction of a booth for check-in. Today, the one-mile stretch is a Heritage Trout Angling Water, so designated for its role in the development of fly fishing in Pennsylvania.

fishing. Upon entrance, anglers were issued an identification button and legal angling hours were marked by the sound of a klaxon.

Even in an era when "catch and keep" was the generally accepted practice, these strict regulations were nonetheless gladly observed. Indeed, whereas the public had largely ignored the project before, they began flocking to it. In a few short years, visitation shot from a handful to more than 50,000 annually. In fact, the large crowds necessitated construction of a booth for check-in, additional law enforcement officers and a grounds crew.

Even though some anglers may have been inspired to build the stream improvement devices the area was originally intended to showcase, the real attractant was the fish. These fish may have outlived their usefulness in the hatchery system, but the old hook-jawed males and enormous females were just the thing to stir the imagination of wide-eyed anglers.

These were, after all, the kind of fish that end up adorning walls and mantles. These monsters no longer spawned young trout, but rather vision of angling greatness.

"Elbow to elbow fishing marked the opening day (May 15) and although this tapered off as the season advanced, the project was well attended until closing day. People came from every state and

many foreign countries - if not to fish, to watch so many anglers... The opening day was a homecoming for many anglers as they were able to see and swap lies with friends they hadn't seen in a year. The most remarkable thing about the Paradise was that, even with so many anglers, seldom did anyone lose his temper," recalled former Fisheries Division Chief Arthur D. Bradford in a 1971 letter.

The Paradise became touted as a family destination. A 1956 article about the project in *The Fisherman*, a national sporting magazine, read much like a travel brochure: "The area surrounding the fishing project is somewhat of a park in itself... Picnic tables are spotted around the grounds. Paths wind beneath shady trees among walled-up spring holes which hold specimen trout for visitors to see." The article went on to enthusiastically extoll the virtues of family fishing at the Paradise, noting, without a trace or irony, that in keeping with the era's sense of equality "a separate stream is maintained for women and teen-age girls."

The passing of time ushered in a new era for Fisherman's Paradise. The growing cost of maintaining so many large fish for one small stretch of water began to take its toll. Water quality in Spring Creek too began to deteriorate with the expansion of communities in the watershed and numerous pollution problems.

In 1961, the Paradise was officially

closed—at least as it had been operated for the previous 27 years. But paradise was not lost. In 1962, the area was designated as a total catch-and-release area for fly anglers and stocked moderately as part of a program called "Fish For Fun." Nineteen years later, in 1981, the Commission opted to manage the stream for its excellent wild trout population and ceased stocking with hatchery trout, a management practice that still continues. Today, the one-mile stretch is considered a Heritage Trout Angling Water, so designated for its role in the development of fly angling in Pennsylvania.

In a very real way, management changes to this short stretch of limestone stream reflect similar changes to the sport itself. Angling emphasis has slowly shifted away from the pursuit of trout fresh from the hatchery to the thrill of matching wits with a wily trout on its own home turf. Conversely, there is much about fishing Spring Creek that will always be the same. It remains a special place to scores of anglers who make pilgrimages to sample the famed waters. The way is still marked with signs counting down the mileage to "Fisherman's Paradise." And as it was for generations past, Fisherman's Paradise is still the birthplace for a lifetime of memories.

This article is the second in a series related to the Fish and Boat Commission's 1997 theme: "Pennsylvania Fishing and Boating Memories Last a Lifetime." The author is the Commission Press Secretary.



Commission Employee Among "Hammer" Awardees

Dave Spotts, a Pennsylvania Fish and Boat Commission employee, was among a group of state and federal workers recently presented with Vice President Al Gore's Hammer Award. The Award recognizes new standards of excellence by teams helping to reinvent government.

Spotts, of Lemont, is a fisheries biologist in the Commission's Environmental Services Division. He represented the agency on a team that consolidated environmental review processes for three major highway projects. The projects were the Mon/Fayette Transportation Project from I-68 to PA 43, the Mon/Fayette Transportation Project from I-70 to PA 51 and the Lackawanna Valley Industrial Highway. The team on which Spotts participated consolidated environmental reviews required under the National Environmental Protection Act and the Clean Water Act. In doing so, the team saved \$119 million and some 11 years of effort.

Welcome Wagon® Connection

If you've recently moved in Pennsylvania, or if you've moved here from another state, you may have received a Welcome Wagon basket. Chances are, if you live in central Pennsylvania, that basket may have introduced you to *Pennsylvania Angler & Boater*. During the last few years, Welcome Wagon baskets in central Pennsylvania have included complimentary copies of the magazine.

The Commission tips its hat to Welcome Wagon for providing this service. For more information on Welcome Wagon, call 1-800-77-WELCOME.

New White Bass State Record



David Hornstein, Meadville, shows off the new state record white bass he caught last October 25. Hornstein was jigging a Sonar on Conneaut Lake, Crawford County, when the monster hit his lure. The 19 1/8-inch fish weighed 3 pounds, 14 ounces with a 15 1/8-inch girth. It beat the old state record by two ounces.

Volunteer Angstadt Recognized

The Commission has many fine volunteers that dedicate a portion of their spare time for Commission activities and programs. Some of these dedicated individuals have been volunteers for years. On October 20, 1996, the Commission recognized one outstanding individual, George Angstadt, who has been a volunteer with the Bureau of Boating and Education since 1988. The Commission honored him with a framed trout print because of the degree to which he has committed himself to assisting the agency in promoting boating and water safety.

In the past three years alone, George has served as an instructor in 70 different Commission-sponsored programs for a total of 1,132 hours. This total includes only the actual instructor hours, not the hundreds of hours he spends each year preparing and planning programs, writing the water rescue newsletter, preparing lesson plans, scheduling programs, certifying instructors and working in the Commission office.

George is an engineer by trade, but he also finds time to coordinate the Commission's water rescue program. In addition to being one of the most active water and ice rescue instructors in Pennsylvania, he is also a Basic Boating and Boating and Water Safety Awareness instructor. George spends his vacation and spare time training our Waterways Conservation Officers and emergency response personnel in boating and water rescue. He even works with kids at the Pennsylvania State Police's Camp Cadet and other youth programs.

Recognizing George for his dedication is long overdue. The kind of service he offers saves the Commission staff time and money, but more important, what he does saves lives.



Photo-Art Michaels

1997 Trout/Salmon Stamp Print & Patch

The PA Fish & Boat Commission's Coolwater/Warmwater print and patch series, the 1997 PA Trout Stamp print and patch, and the 1991-95 trout patch set are available while quantities last. The Commission does not sell these items directly. Information is available from the publisher: Wilderness Editions, 814-632-7645.

Remember: Fish-for-Free Days in 1997 will be June 7 and September 27.

Artists Invited to Enter Trout Stamp Contest

The Pennsylvania Fish and Boat Commission is seeking artists to submit works featuring one of the state's most scenic trout streams. Entries will be judged by an expert panel, with the top selection depicted on the 1998 Trout/Salmon Stamp and Print.

The contest is an annual event, drawing artisans from throughout the nation. The winning image is reproduced as a stamp, serving as a permit required of all licensed trout anglers. Special-edition art prints depicting the top entry

are also issued. The winning artist will receive payments of \$3,000 as well as fees for signed prints, stamps and mini-prints. The original work becomes the property of the Pennsylvania Fish and Boat Commission.

Second- and third-place winners will be awarded \$1,000 and \$500 respectively.

The Commission held the initial art contest to select the "First of State" stamp issued in 1991. From 1991 through 1995, the stamps featured species of trout found in Pennsylvania waters. In 1996,

a run of famed streams began, a series that continues. Competing artists must depict one of a select group of streams. The scene may include anglers and/or trout. However, the primary focus of the work should be the stream itself. The stream section depicted will be verified for authenticity of location.

For the complete rules of entry, contact Tim Klinger, Pennsylvania Fish and Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000. The deadline for submissions is 4 p.m., May 22, 1997.



The mission of the Pennsylvania Fish & Boat Commission is to provide fishing and boating opportunities through the protection and management of aquatic resources.

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Angler's Notebook by Seth Cassell

Stoneflies, unlike most mayflies, do not hatch in the water. While in the nymphal stage, they crawl upon rocks, logs and other objects before hatching. There, they hatch into adult stoneflies. Before taking flight, they'll spend several minutes on the object drying off their wings.

In the high water of early spring, trout can often be found in eddies that form near fast currents, log jams, windfalls, boulders and waterfalls. A weighted nightcrawler or minnow carefully dropped at the edge of the eddy can be the ticket to success at these locations.

When scouting a shad fishing location, look for bridge abutments, wingdams and narrow sections of the river that funnel migrating shad into a small area. These locations are hotspots. Also, shad congregate behind large obstructions. Place your offerings so that the fish run into your darts or spoons as they head into the current again.

After opening day of the trout season, it is sometimes best to use baits, lures and flies of natural colors. After seeing all sorts of flashy, colorful baits on opening day, trout are sometimes more receptive to dull-colored lures and baits.

Spinners with streamlined blades are best during the high water of spring. These blades have less water resistance, and work best close to the bottom where the fish are holding. When the water level drops, switch to oval-shaped blades.

Fly-fishermen can find excellent panfishing opportunities, even early in the season. On sunny days, crappies and sunfish head to shallow areas, where they can find warmer water temperatures. A white Woolly Bugger bounced off the bottom can pull in quite a few fish. Try the streamer with a few wraps of silver or gold tinsel if the water is cloudy.

Don't give up on a shad fishing spot once the first run of shad comes through. During the season, waves of shad head up the river, and your spot can be productive repeatedly.

Many Pennsylvania impoundments have submerged roads and railroad beds. If they are located in shallow water, they are excellent places to find crappies, especially on sunny days. Probe the water with a live minnow, and once you locate some fish, switch to small twister-tail jigs. Chartreuse, white, yellow and red work especially well.

Spring overturn occurs on lakes when the water on the surface warms to a temperature equal to that of the bottom. This mixes previously stratified water and can cause a lake to become discolored.

After a heavy spring rain, head to your favorite headwater trout streams. These small streams are usually the ones that clear up the fastest, and hence offer the best fishing. Don't give up on large streams, though, because high, discolored water makes larger fish feel less vulnerable and more apt to smack your bait or lure.

illustration: Ted Walke

Ways to SAVE FUEL

by Bob Stearns



Remember the somewhat painful fuel squeeze of the late 1970s? For quite a while there it looked like recreational boating was doomed to go the way of the dinosaur. But if nothing else, many of us did learn some valuable lessons in fuel conservation.

Don't think for a minute in this time of apparent gasoline plenty that long lines and short supplies won't ever happen again. Besides, the recent price hikes alone should dictate at least somewhat of a need for fuel conservation. So why waste it when you could use that money for something else? Like more days on the water!

And considering the cost of gasoline and diesel fuel in Europe these days, U.S. prices still remain surprisingly low, another reason not to waste the stuff. It doesn't take a cataclysmic event to trigger runaway fuel prices, so there is always the possibility that the dire predictions of four bucks per gallon in the U.S., as was suggested almost 20 years ago, might someday still become unpleasant reality.

Saving fuel isn't rocket science. Some of the many ways are mostly a matter of common sense. For instance, don't make unnecessary trips in anything that burns gas or diesel fuel. Other ways to save fuel require a little more thought and understanding.

Props

If I had to pick the most fuel-wasteful piece of hardware on a powerboat, it would unquestionably be the propeller. If your auto suddenly started getting half of its normal mpg, you'd haul it in for service in a heartbeat. Yet many boaters allow the same thing to happen with their boats without even a fleeting moment of concern.

Over the past 25 years or so I have personally conducted hundreds of boat tests with very accurate speed and fuel measuring gear, so my files of boat test reports are many inches thick. A few of these tests reflect incredible differences in fuel efficiency among many boats that should have essentially identical performance.

Some of these variations reflect differences in power, and certainly under- or over-powering a watercraft can cause big changes in mpg as well as top speed. But the biggest surprise of all typically seems to come from the prop.

A damaged propeller is obviously going to lose some of its top end speed, and that means a corresponding loss of fuel efficiency all the way down through the rpm range. Sometimes the damage is so slight, it is almost not noticeable, yet still sufficient to reduce your mpg significantly—like the slight dent a water-hardened submerged log put in my stainless steel propeller several years ago. Barely a finger-width wide, that alone took 300 revs off the top end and six percent off my mpg. By itself, this information is hardly earth-shaking. Engine vibration was the tipoff, so I quickly got it fixed.

A secondary effect of that log incident was a prop shaft two millimeters out of line; expensive enough to repair by itself but if left uncorrected it would have led to lower unit seal failure. This would have caused water intrusion into the gear, and that would have been a great deal more expensive. A prop shop put my propeller back in like-new condition, and I'm still using it today. The point is that any damaged prop should be suspect.

Blades

Blade wear is another story. It uniformly affects every blade on the prop, so there is no noticeable vibration. Efficiency just slowly goes downhill, and so does your mpg. It can go undetected for a long time as the problem steadily worsens.

If you run in skinny water a lot, even soft mud will eventually wear a significant amount of surface off the hardest propeller blades. A sure tipoff is your WOT (wide open throttle) rpm. I always check mine for a few seconds on the way back to the dock at the end of each day's fishing. If my top revs are down by more than 100, an engine problem may be developing. But if they're up by more than 100, then prop wear may be taking place. Make sure in these tests that your boat's gross weight, running attitude, and water conditions are similar each time.

A tachometer is a wonderful fuel-saving device. It helps you keep an eye on your most efficient cruising speed as well as indicating the other potential problems mentioned above. Most marine engines deliver their best fuel economy at around 70 to 80 percent power, by the way. For an outboard designed to turn around 5,500 rpm at WOT, that's around 4000 revs.

All of this assumes the boat is properly propped. It's hard to resist the temptation sometimes to squeeze an extra mph or three out of an engine by running a prop that carries too much pitch. But that also strains (lugs) the engine considerably, not only reducing its longevity a lot, but also reducing its fuel efficiency at the same time.

Even worse is an under-pitched prop. It may allow the engine to develop its top revs more rapidly, and it won't cause accelerated engine wear unless you operate a lot near the top end of its rpm curve. But on the other hand it will shoot your fuel efficiency squarely between the eyes.

On some of the boats I've tested, just two inches less than optimum pitch caused a mpg loss of 15 percent or more at best cruising speed, and as much as 25 percent at WOT!

Cheap props may be ok as an emergency get-home spare, but pinching pennies at the very point where your engine transfers all of its energy into the water really doesn't make good economic sense in the long run. A quality prop not only yields better mpg, it also adds a little speed, too.

Stainless steel or aluminum?

When it comes to outboards and stern drives, as a rule the same propeller shape and design in stainless steel is better than aluminum. Stainless props have thinner blades, so they exhibit less water resistance. They also hold their blade shape better under heavy load, which translates to better efficiency. The sum total is higher top speed and better mpg.

Stainless steel props are two to three times more expensive than aluminum props, but they also last many times longer and are far more resistant to impact damage. Add the fuel savings consideration, and in the long run they become abundantly more economical.

The right combination of power and propeller is the best starting point for fuel conservation. Eliminating unnecessary weight also helps. In addition, you can save a lot of gallons every year on any planing hull if you have remote-controlled trim tabs of suitable size and learn how to use them effectively. They improve planing efficiency considerably, as well as riding comfort.



More Ways to Save Fuel

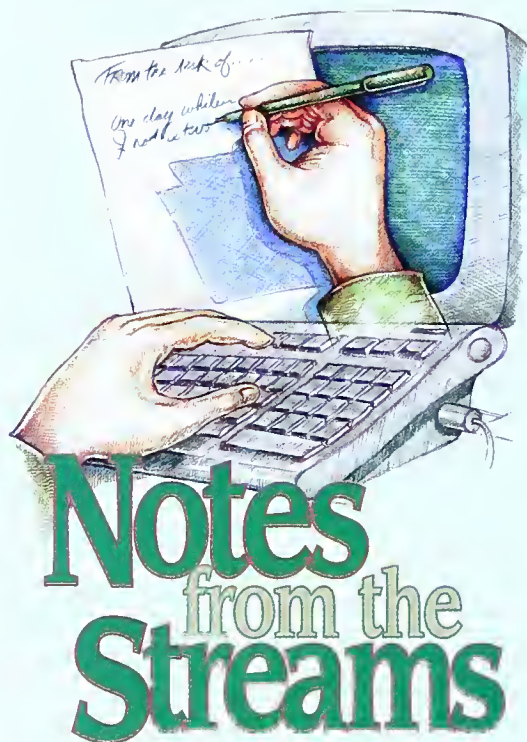
If you use your boat regularly during each summer, it's a very good idea to change the engine's spark plugs just before the beginning of each season. The few bucks that new plugs cost will be more than repaid in fuel savings over the season. Dirty and/or badly worn plugs can waste as much as one gallon out of every 10. Plugs that missfire (even so slightly that they go unnoticed) can also accelerate engine damage.

Even if you use your rig only occasionally, at least pull each plug out and inspect it carefully in the spring. Replace any that look at all suspicious.

Don't carry more weight than you have to. Leave unnecessary gear at home. Every pound slows you down and decreases your mpg.

Be careful where you place heavy objects. Non-planing boats should always be on even trim fore and aft, but planing boats carry their loads best in the rear half of the hull. Every pound near the bow just pushes the hull deeper into the water, increasing its wetted surface (and therefore drag).

Engine trim is important. Trim the engine's lower unit down (forward) for rough water to stay on plane at slower, more comfortable speeds. For smooth water the engine should be trimmed out until the propeller shaft is at least parallel with the surface of the water—even more aft for high-performance hulls that can take advantage of the bow-lifting effect.—BS.



From the mouths of babes

During a presentation to a group of elementary students I held up a PFD and asked if anyone knew what words the letters "PFD" actually represented. One youngster frantically waved her hand and blurted out, "Prevent From Death." My response, "You're absolutely right, a personal flotation device may very well prevent someone's death."—WCO Martha Mackey, Southwest Region.

A bear of a first day

While in college I worked for the PA Game Commission's Food and Cover Corps. I hoped to get to work on some projects that would get me close to bears, and although I never did get on any bear projects I was lucky enough to get to handle water-loving critters such as beaver, hooded mergansers, and survey wood duck nests.

On my first day of field training in Pike County as a Waterways Conservation Officer for the PA Fish and Boat Commission, irony came full circle when I got to help and observe Gary Alt and Wildlife Conservation Officer Dirk Remensnyder do some bear research.—WCO William Crisp, Southeast Region.

Got any big ones?

Part of our training to become a WCO involved traveling with a fish culturist to stock trout. On my assignment we traveled from the Pleasant Gap Fish Culture Station to Greene County. As we pulled up to our destination, I asked the culturist if the public asked him many questions. He responded, the number one question was, "Do you have any big ones?" No sooner did he get the words

out of his mouth when an elderly gentleman approached the truck and asked, "Do you have an big ones?"—WCO Walter Buckman, Northeast Region.

By the way...

Last year the Pennsylvania Fish and Boat Commission set aside the first Saturday and Sunday in June as Fish for Free weekend. In doing so, the agency hoped to attract newcomers to the joy and relaxation which can be experienced in Pennsylvania's great outdoors. That weekend this year found me on a field training assignment in Washington County, working with WCO Keith Small.

By evening on Sunday, our day's travels found WCO Small and myself at Cross Creek Lake—a quiet and peaceful conservation lake only a stone's throw from the suburbs of Pittsburgh. While making contacts and conducting safety inspections of each boat as they approached the dock, I encountered the true meaning of the phrase "from the mouths of babes..."

One of the last boats off the lake that evening contained a family. Arriving at the dock, the father and the anxious boy, who appeared to be no more than six, departed to retrieve their vehicle. Mom, being left with the boat, chatted with me about the day's events. According to her, dad and the boy had fished all day and had met with moderate success. Additionally, she mentioned the boy had actually caught more than dad and was exceptionally proud of his accomplishments.

"How'd you do?" I asked. "Oh, I wasn't fishing. I don't have a license," she replied. Just as I began to explain to her the significance of the weekend, father and son returned and the lad was more than happy to talk to anyone who would listen. "Hey mister, I caught more fish today than dad did! And mom almost caught one but it got away," he said enthusiastically.

"OK, that's enough. You've taken up enough of this man's time," mom added quickly, thinking, I assume, that he was about to get her in trouble. Seeing that they had all the required safety equipment for their boat and that the child was wearing a PFD upon their arrival at the dock, I bid them a good evening and turned to go. Turning back toward them, I added one last thing. "By the

way ma'am, as I attempted to say earlier. This is Fish for Free Weekend in the Commonwealth. For this entire weekend you don't need a license to fish. Too bad you didn't know, perhaps you could have taken the opportunity to fish with the family. Good night, now." She replied, "Thank you, I certainly wish now that I had known that."—WCO Mark Kerr, Northwest Region.

Can you canoe?



As part of the training experience at the H.R. Stackhouse School of Conservation, cadet Waterways Conservation Officers were provided the opportunity to experience the wonderful world of canoeing. When most people think of canoeing, they think of peaceful, quiet and serene float trips down picturesque waterways. Indeed, that was surely my thought as our class prepared for the trip.

Upon our arrival at the launching area, my classmates and I unloaded the canoes from the trailer and positioned them along the stream. As we were receiving our last minute instructions, I noticed everyone has chosen a fellow paddler except for me and our largest class member. Looking in vain for a weight capacity plate on our canoe, I suddenly realized my time in dry clothes was coming to an abrupt end.

As we sized each other up, my extra large fellow paddler and I said to each other simultaneously, "Had much time in a canoe?" We both answered negatively, did a quick mental addition and accepted our fate knowing full well that by the end of this two- to three-hour trip we would still be able to answer the aforementioned question in the negative. A rain swollen stream and 527 pounds of paddlers add up to a lot of time in the water instead of in the canoe.—Terence Deibler, Southcentral Region.

Ho, ho, ho and a bottle of rum

I was assigned to field training in Venango County with WCO Steiner

Memories To Last A Lifetime



when this incident occurred. Steiner picked me up from the hotel that morning and said that we would practice boat handling and trailering that day. He said that our focus would be on operation rather than enforcement because there is little to no boat traffic on the Allegheny on Mondays.

Not long after launching the boat, we noticed something in the water ahead of us. It looked like a boat without a free-board. As we approached the vessel, we observed a man with a parrot on his shoulder. His kayak, which had a small motor on it, had no registration numbers or validation decals. I asked the gentleman to pull his vessel to shore where we could talk. As I walked over to his boat, he informed me that he had been stopped in Erie for the same thing and proudly showed me the citation that WCO Carter had issued to him two days earlier.

I explained that a second violation of the code in 12 months meant that the fine would be tripled. He then exercised his non-resident rights to be taken before a District Justice. We left the boats and walked four blocks through town to the DJ's office. On the way there, the



man told us that he was traveling to the Pacific Ocean on his 22-foot kayak with his parrot named Parker Pecker Paw. We arrived at the DJ's office and I began to fill out the proper paperwork. Every question I asked was returned with two answers—one from the man and the other from the bird. With white down feathers flying around the courtroom and me sneezing, we presented the Commonwealth's case.—WCO Erin Ryan, Southeast Region.

Many duties

Waterways conservation officers have a vast array of duties and responsibilities

which became more obvious to me during our lengthy training process. While I was on field training assignments driving a marked patrol vehicle, I was summoned for assistance three times by stranded motorists.

One family was traveling to Canada from eastern Pennsylvania along the PA Turnpike when, around the Bedford area, they had the misfortune of a deer running into their vehicle and disabling it. I was glad to be able to help them by getting a State Trooper and tow truck to assist them. For another who was walking a great distance to get help, I was able to assist him in getting a local police officer to take him to his destination. Late one evening along Interstate 95 I was flagged down by two gentlemen who had run out of gas and had been stranded quite a long time. My radio call to our Philadelphia base station brought them the help they needed. The one gentleman was an off-duty Philadelphia police officer who was very grateful that I had stopped. I am not sure who was more thrilled to get off the side of that road—me or them!—WCO George Geisler, northern York County.

That's a new one

I learned something new since I was transferred to the northern Luzerne district in February 1995. One would think you would have heard all the reasons for fishing without a license. Well, I have two more to add to the list. The first one is, "you don't need a license to fish in the Susquehanna River." I guess some people think tidal waters extend all the way to Luzerne County. The second and latest excuse is "I didn't think fishing licenses were required in state parks."—WCO James Stout, northern Luzerne County.

A growing sport

The first day of trout season was the warmest here in the last 10 years. The air temperature was 50 degrees. A light rain fell off and on most of the day. The best catches were from lakes and ponds. The streams, as usual, were still high from the abundant rainfall the previous weeks. A few streams did provide some good catches.

One thing that was different other than the warm temperatures was the fact that there were more family groups and more younger people fishing. I thought that was due to the warmer temperatures, and maybe so, but I have seen this trend hold

right through the opening of bass season and into the summer.

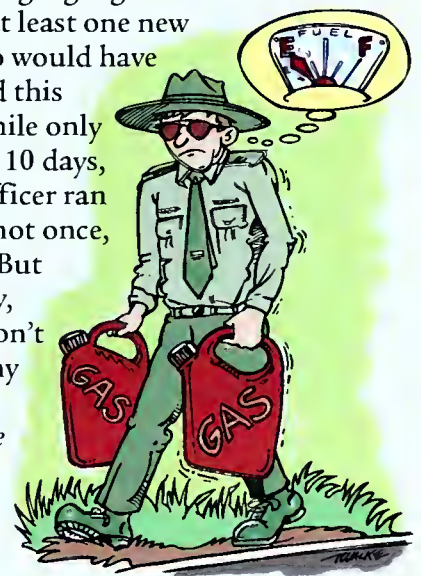
Most of the younger anglers that I talked with were having an enjoyable time. Some told of above average size fish that they had caught. I know that they will be around next year again.—WCO Warren Singer, Bradford/Sullivan counties.

How low can you go?

On June 24, 18 new Waterways Conservation Officers began their careers in locations scattered across the state. For nine months we have received the best possible training ranging from Act 120 Municipal Police Officer training to specialized training in Conservation Law Enforcement. Although we have received countless hours of training in a variety of areas, I believe our Training Officer Jeff Bridi needs to add one more course to the curriculum—how to read and understand the gas gauge in a state vehicle.

I know of at least one new officer who would have appreciated this course. While only in the field 10 days, this new officer ran out of gas not once, but twice. But don't worry, Walt, we won't mention any names.

—WCO Clyde Warner, Northeast Region.



I see you!

Ten days before graduating, a friend and I decided to do some fishing. On our way we were caught in a traffic jam on Route 81, one mile from the Drinker Street exit. I was looking in my rearview mirror when I noticed the driver behind me take a sip from a beverage container and then toss it out the window. As the traffic cleared, the driver passed me. My friend recorded a description of the driver and the vehicle license plate number.

On my second day of work as a new WCO, I went to the proper District Justice and filed the charges. The moral of the story—you never know who's watching!—WCO Walter Buckman, Northeast Region.



Bald Eagle Creek, near Tyrone

New waters

Mead Run, Elk County. Water Quality improvements through the efforts of the Little Toby Creek Watershed Association will result in the addition of catchable trout management on the lower 2.0 miles of this stream. Beginning with the 1997 season, this water will receive a preseason and an inseason stocking of brook trout.

Riley Creek, Wyoming County. For the 1997 season, a new 1.5 mile section from T-309 downstream to the mouth will be added to the catchable trout program. This section will be planted with brook, brown and rainbow trout on a preseason only basis.

Moose Creek, Clearfield County. Located near Clearfield, PA, a 3.5 mile section of stream from the confluence with the Left and Right Branches downstream to 0.4 miles below Moose Creek Reservoir will be added to the catchable trout program for the 1997 season. This water will receive a preseason and an inseason planting of brook and brown trout.

Little Lehigh Creek, Berks and Lehigh Counties. Results from the 1996 reinventory work has led to the return of catchable trout management on a 3.1 mile section of stream from the SR 1039 bridge downstream to the T-476 bridge. Brook and rainbow trout will be planted on a preseason only basis in 1997.

Mud Run, Carbon County. Annual monitoring efforts have indicated that

the abundance of wild trout has not been consistent enough to provide the level of recreational angling desired. Therefore, the 2.5 mile segment of Mud Run located within the boundaries of Hickory Run State Park will return to the catchable trout program for the 1997 season. Current management under the Delayed Harvest program will provide for both spring and fall plantings of brook and brown trout.

Little Schuylkill River, Schuylkill County. Located near Tamaqua, PA, a new 3.4 mile section from the confluence with Locust Creek downstream to the confluence with Panther Creek will be added as an approved trout water. Beginning with the 1997 season, brook and brown trout will be stocked on a fall only basis.

Deer Creek, York County. A new 2.7 mile section from the T-540 bridge downstream to the confluence with the first Unnamed Tributary downstream from the SR 2076 and T-544 intersection will be added to the catchable trout program. Brook, brown and rainbow trout will be planted on a preseason only basis in 1997.

Bull Creek, Allegheny County. The addition of this 1.3 mile segment of stream from the Stone Quarry Road bridge downstream to the bridge on T-721 will provide additional angling opportunities in the greater Pittsburgh area. Beginning with the 1997 season, this section will receive preseason and

inseason plantings of brown and rainbow trout.

Expansions to listed waters

Classification changes and/or stocking limit extensions have led to an increased stocking program on the following waters: Antietam Creek, Berks County; Bear Creek, Schuylkill County; Bowery Run, Lancaster County; Brush Creek, Indiana County; Bushkill Creek, Monroe County; Chest Creek, Clearfield County; Cowanesque River, Tioga County; Darby Creek, Delaware County; Donegal Creek, Lancaster County; Jacobs Creek, Westmoreland County; Laurel Run, Cambria County; Lily Lake, Luzerne County; Little Juniata Creek, Perry County; Mill Creek, Berks County; Perkiomen Creek, Berks-Montgomery Counties; Snitz Creek, Lebanon County; Stony Creek, Montgomery County; Swamp Creek, Berks County; Unnamed Tributary (Stony Ck) Montgomery County; and West Pithole Creek, Venango County.

On behalf of the general angling public and the Pennsylvania Fish and Boat Commission, I would like to express our gratitude to the landowners for granting the additional angler access to provide the new waters and extended angling opportunities for the 1997 season.

Restorations to listed waters

The following waters will have their

allocations restored following reductions in 1996 as a result of flood damage or drawdowns for repair: Childrens Lake, Cumberland County; Marquette Lake, Lebanon County; Pleasant Stream, Lycoming County; Raccoon Lake, Beaver County; Traverse Creek, Beaver County; and Young Womans Creek, Left Branch, Clinton County.

New Delayed-Harvest Areas

Bull Creek, Allegheny County. In cooperation with private landowners, a 1.0 mile section of stream will be added to the Delayed Harvest Artificial Lures Only program in 1997. The new area will extend from the first bridge on T-721 (upstream from the T-721 and T-719 intersection) downstream to the T-721 bridge in Millerstown.

Chest Creek, Cambria County. In cooperation with local anglers and private landowners, a 1.8 mile segment of stream will be added to the Delayed Harvest Artificial Lures Only program for the 1997 season. The new area will be located from the North Patton Borough Boundary downstream to the SR 4024 bridge at Thomas Mills.

Dutch Fork Creek, Washington County. Located in part on Pennsylvania Fish and Boat Commission property and with cooperation from private landowners, a Delayed Harvest Artificial Lures Only area will be added on Dutch Fork Creek for the 1997 season. The area will extend for 1.8 miles from the first SR 0070 bridge upstream of the Columbia Gas Compressor Station downstream to the backwaters of Dutch Fork Lake. This section also represents a new water area added to the catchable trout program in 1997.

Indian Creek, Westmoreland County. In cooperation with the DCNR Bureau of Forestry, a 1.6 mile section of stream from the T-916 bridge downstream to the SR 0381 bridge will be added to the Delayed Harvest Artificial Lures Only program in 1997. This segment will also represent a new water area added to the catchable trout program for the 1997 season.

Pike Run, Washington County. In cooperation with the landowner, a 1.1 mile section of stream will be added to the Delayed Harvest Artificial Lures Only

program for the 1997 season. The new area will extend from the confluence with the Unnamed Tributary upstream of the SR 2079 bridge downstream to the power line downstream of the SR 2036 bridge.

Tunkhannock Creek, South Branch, Wyoming County. In cooperation with private landowners and Keystone College, a 1.0 mile section will be added to the Delayed Harvest Artificial Lures Only program in 1997. The new area will be located from the SR 0006 and SR 0011 bridge downstream to the downstream boundary of the Keystone College property.

the catchable trout program for the 1997 season.

Stewart Run, Lancaster County. Access limitations preclude the continuation of catchable trout management on this 2.1 mile section of stream. Prior to 1997, this water was stocked on a pre-season only basis.

Powell Creek, North Fork, Dauphin County. Due to an increase in the amount of landowner posting, this 4.1 mile section of stream will be removed from the catchable trout program in 1997. Formerly, this section had been stocked on a preseason only basis.



Remember to thank landowners for access to private property.

Early warning waters

Allegheny Portage Creek, McKean County. Recent inventory work has confirmed that a 1.6 mile section of Allegheny Portage Creek supports an excellent Class A wild brown trout fishery. Stocking will be discontinued for the 1997 season in favor of wild trout management on this water.

Mountain Lake, Bradford County. Due to angler-landowner conflicts, the private landowners from the Mountain Lake Association have expressed their desire for the removal of this water from the catchable trout program. Therefore, beginning with the 1997 season, catchable trout stocking will be terminated on this 34 acre lake.

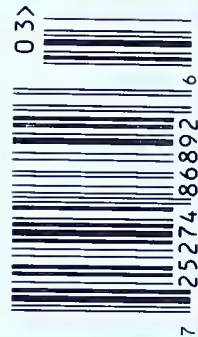
French Creek, South Branch, Chester County. An increase in the amount of landowner posting has led to the removal of this 1.0 mile section of stream from

Loss of angling opportunities

The following waters will receive a reduction in their allocation for the 1997 season due to an increase in the amount of landowner posting. In many cases posting and the loss of angling opportunity is a direct result of poor angler behavior. I would like to remind anglers to conduct themselves accordingly when visiting our waterways to ensure that our existing areas remain open to the general angling public: Cowley Run, West Branch, Potter County; Elevenmile Creek, Potter County; Manada Creek, Dauphin County; Mountain Creek, Fayette County; and Roaring Brook, Lackawanna County. □

Tom Greene is the Commission Bureau of Fisheries Coldwater Unit Leader.

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Pennsylvania ANGLER & BOATER



The Keystone State's Official Fishing and Boating Magazine

More Women Anglers-page 22

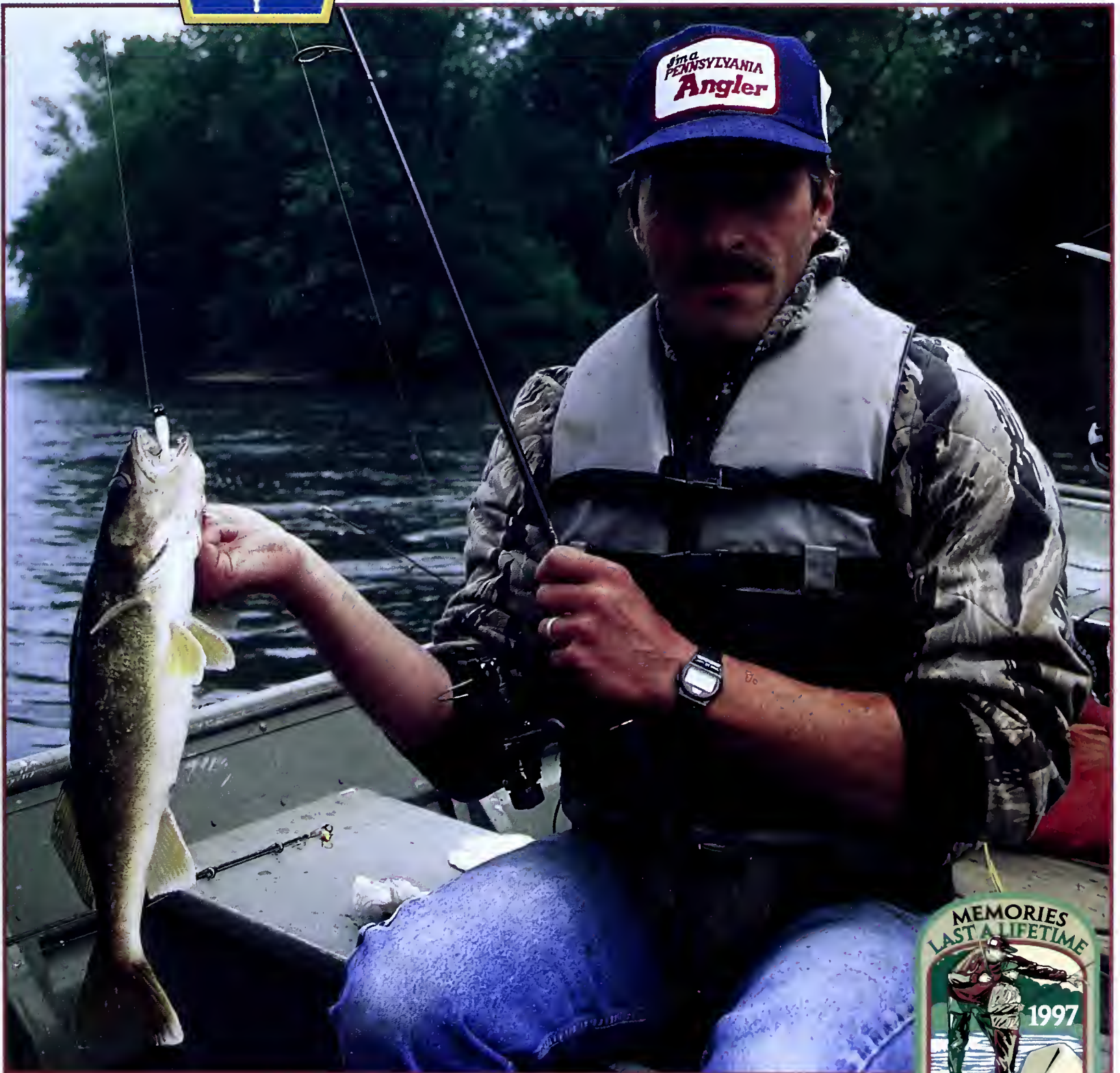


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INSIDE: Walleyes • Shad • Jetskis • Rock Bass • New PFDs and more!





RESOURCE FIRST

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An Open Invitation to Youth Come Start Your Lifetime of Fishing Memories

It may seem hard to realize now, as you look eagerly to the future, that the promises of tomorrow will eventually become your history of yesterdays. And what you do right now will be that which you look back upon. By the time you reach that point, you'll have collected a lifetime of memories. It is that idea, that memories do last a lifetime, that's behind much of what the Fish and Boat Commission does.

Our mission is to provide fishing and boating opportunities. To do that, we use the latest scientific knowledge, enact and enforce laws and do many other things to ensure that water resources and aquatic life are protected. Sound like hard work? It is. But the bottom line is that we are really in the fun business. Our goal is to make anglers' and boaters' days on the water safe and enjoyable. We want your lifetime of memories to be pleasant ones.

Nearly all the anglers fishing today started before they were 14. Some studies show that anglers who fish often as adults started very early—around four or five. That means if you fish now, you will probably fish as an adult. The odds are, if you don't fish, or haven't fished by the time you are 16, you will not likely fish later on.

Why? In the next few years, many activities will compete for your time, interest and money. I want to encourage you to pursue those activities. Those other sports and activities will enrich your life. They will also teach you much about working with others and doing your best. But I also encourage you to keep fishing, boating and other outdoor activities part of your life. Because unlike those other activities, fishing and boating are life sports. That means you can be involved in them your entire life.

Picture yourself 40 years from now running up and down a soccer field. Or playing competitive football or baseball. Is it likely to happen? Can you picture yourself 40 years from now sitting in a boat on a crisp spring morning? How about standing waist-deep in one of our wonderful trout streams? Which one is more likely to happen?

All of those fishing and boating experiences are at your fingertips. They are accessible to you no matter your age, ability, disability, income and education level. Remember that fish don't discriminate. Can you say the same about other activities that compete for your interest? Name one activity, that you, your family and your friends can participate in no matter what your skill level may be. Have you ever played tennis with someone who has never played? It's not much of a challenge.

Many Pennsylvanians say they fish to be with family and friends. I guess for them it's more about people than fish. It's no wonder, because fishing provides a great opportunity for friends to become better friends and families to draw closer. The quality times afield with family and friends are the kinds of memories that last a lifetime.

Fishing also gives you an opportunity to be outside and relax.

You spend many hours in a classroom. Is there a better way to unwind than to dunk a worm or cast a plug? On the water you might witness an osprey diving for a fish, hear a chorus of spring peepers, or listen to a red-winged blackbird calling a mate. You might see swarms of mayflies form clouds above the water, while bats dart in and out of the clouds, feasting on the abundant bugs. As those bugs fall to the water, you might see the water come alive with fish, also feasting on the abundant insects. After a while, all these pieces will fall into place. You will learn how all are related and connected. These are lessons you can't learn from a book. You must experience them to understand them fully.

Fishing may also open other doors for you. Many staff here at the Commission made their career choices based on their experiences as youngsters. That includes me. Turning over rocks inspired us as we discovered a hidden world. For some it was the feel of a trophy fish on the end of a line, or just being outside that inspired them. Ask anyone who works for any natural resource agency around the world, and they are likely to say the same thing. Who knows, maybe in 20 or 30 years as executive director you will be

writing a similar message to young people.

There are many other activities related to fishing and boating that you can pursue. You might learn to craft your own lures or flies. Maybe someday you will learn to build a fishing rod, or make a tip-up. Perhaps you will build your own canoe or small boat. These hobbies will add to your enjoyment and understanding.

I encourage you to fish and boat more in the next few years. Take your friends along. Get them in on the fun. Learn all you can about our natural resources. Be good stewards of those resources. Use them wisely and safely. But most of all, make some memories. They will last a lifetime.

Peter A. Colangelo
Executive Director
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Pennsylvania ANGLER BOATER

The Keystone State's Official Fishing and Boating Magazine

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This issue's front cover, photographed by Mike Bleech, shows Pennsylvania angler Tim Fields with an Allegheny River walleye. Notice that he's wearing a PFD? The Commission encourages anglers and all boaters to wear a device while aboard a boat. The new kinds of inflatable PFDs now approved by the Coast Guard make wearing devices easier. If you wade streams, fish from a boat, or just cruise, check out the latest on page 10.





From Senator Corman...

I write to congratulate you on your outstanding efforts to bring *Pennsylvania Angler & Boater* magazine into a broader readership with your new bimonthly, combined format. I find the combined issue much more to my liking, as I can now keep in tune with both the fishing and boating side of your agency. As always, I found the content to be most informative and the publication continues to be done in a very classy format.

I very much appreciate the Fish & Boat Commission's attempts to bring the cost of operation into line with the revenues generated. For those detractors of the new format, possibly they could persuade some of their sporting friends to subscribe and help expand the circulation of your award-winning publication.

Again, I appreciate your fine work and think your new combined edition has opened the entire Fish & Boat Commission story for me to enjoy on a regular basis. While I'm passing out complements, allow me to congratulate your staff's effort on the World Wide Web page. Your home page is an excellent opportunity for anyone to find a complete menu of Fish & Boat Commission stories waiting to be told. Keep up the good work!—*Senator J. Doyle Corman.*

Maryland resident

Enclosed is a money order for \$9.00. Please renew my magazine subscription for one year. I really like the magazine, even though I'm a Maryland resident. Your magazine is highly informative and entertaining. What a fine staff. That's why I'm renewing. I wish the state of Maryland had something like this.—*Vernon Kirley, Jr., Glen Burnie, MD.*

Thumbs down

Yesterday I received my copy of *Pennsylvania Angler & Boater*. Like the first item in the January/February issue "Mail," I am not pleased! I am paid up to July 1997 to the *Pennsylvania Angler*, not *Pennsylvania Angler & Boater*. I feel that you are cheating me and all the other people who subscribed to the *Angler*. I want to read about fishing and fishing articles, not boating.

First it was the summary book, now the *Angler*. I guess next it will be the fishing license in your quest for more and more money.

I only hope there are more fellow anglers like me who want our *Angler* magazine back. Did you ask the people who do not own boats, and fish from shore or fly fish if they want to read about boats?

Not only are you taking my monthly *Angler* magazine from me and my fellow anglers, but you're telling us how great it will be to receive a bi-monthly magazine about boats.

My subscription is up in July 1997 and at that time I will cancel my subscription to your unwanted *Pennsylvania Angler & Boater* and also my family membership to PLAY.

I know my letter will never reach the pages of your magazine because it might start a boycott of your magazine.—*Joseph Gates, White Haven, PA.*

Former staff member

As a former staff member of the Commission, and 91 years old, I am still vitally interested in the changes in the *Pennsylvania Angler & Boater* magazine. Without going into detail, I just wanted you to know that I agree with all the changes in the magazine. There is now something for most everyone in it, and I think to put it out on a bimonthly basis is wise. I shall look forward to receiving each issue.—*Gordon Trembley, Kalamazoo, MI.*

Speaking of fish stories...

Since all fishermen have stories, I want to share mine. I was with a friend at the tailrace of the Youghiogheny Reservoir the day after Thanksgiving fishing for trout. I hooked a very nice 17-inch brownie on a lure. My friend was attempting to unhook the fish from the lure when the line snapped. Away went the fish with the lure!

Exactly two weeks later, in the very same spot, I caught the very same fish—lure and all! As if that is not unusual enough, what I did next was also very unique. I tied on my newly "retrieved" lure and, you guessed it, I caught another brown trout about the same size, although in a different location.

I know that such things are not unheard of, but I am amazed that this happened. I'm also glad that someone was with me on both occasions to verify my "fish story!"—*Fred Chirieleison, Monroeville, PA.*

Stringer of catties

In your December 1996 issue, on page 30, you asked for a fishing story written by a subscriber, and I have a dandy! When my dad was in high school, which was a while ago, he was fishing on the Susquehanna River with his buddies to catch some channel catfish. After a few hours of bottom fishing they had a stringer with five or six nice catfish on it. Then one of the guys yelled, "Oh, no! I dropped the stringer!" And all of the catfish went down the river! They decided to stay out a while longer and throw back what they would catch because of their lack of a stringer. So they continued to fish for a while, when one of the guys said, "Oh, I'm hung up on something!" He reeled in what he thought would be a stick or a branch, but it turned out to be the stringer they had dropped! The stringer of catties was given to a person with a sure grip as they returned home to eat their catch.—*Jesse Eisenbise, Hershey, PA.*

We continue to look for stories by our subscribers! Send them to: The Editor, PA&B, PA Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.

Flying smallies

I live in Virginia and have access to some pretty good smallmouth rivers—the Potomac, the Shenandoah and the James. However, because I'm an avid smallmouth angler, on occasion I like to venture outside my immediate environs and try someplace different. I "discovered" the Susquehanna a few years ago, and I fell in love with it.

Generally, I do quite well on the Susky and always have high expectations whenever I plan a trip to fish it. One day last year in late June, a friend, Frank, and I decided to go to the Susquehanna and try our luck. That day didn't bode well for us, however. The river was muddy, and reports from various sources were not favorable—no one had been catching fish recently. Bob Clouser, guide and guru on the Susquehanna, says he doesn't generally book guiding trips on the river during the last two weeks in June because the smallies are going through the post-spawn blahs. According to Clouser, the spawning ritual, combined with the smallies' efforts to fend off predators from

Memories To Last A Lifetime



their nests, leaves them depleted. Thus, according to Clouser, the smallies tend to shut down the last half of June before they resume their traditional summer feeding pattern. When I told Clouser our intentions to make the trip up there, he said we would be wasting our time.

Despite all the dire warnings, Frank and I decided to try the Susquehanna anyway—you always think that the day you go out is when things will turn around for the better. Well, they didn't. We put in at Duncannon and motored up above the confluence of the Juniata and Susquehanna in hopes of getting away from the muddy water (to no avail). The fishing was horrible.

However, for a period of about 45 minutes, a strange phenomenon occurred. Periodically, a fish would jump very close to the boat. It was evident that the fish weren't feeding on top—there was no insect activity. Furthermore, the nature of the jumping was peculiar. The small-mouth appeared to be “porpoising”—that is, making several almost horizontal jumps one right after the other. I'm not talking about swarms of fish doing this—but a fish here, a fish there.

These were not small fish, either—at least a minimum of 11 to 12 inches. In one instance, a smallie ran into the side of the boat. Then, the ultimate: Frank and I had both cast toward shore when one of the smallies leaped over the hull into the boat alongside my feet. This was a 13-inch to 14-inch fish.

Yeah, I know what you're thinking, and believe me, Frank and I had a difficult time convincing our friends that we weren't out of our minds that day. I have no explanation for the “flying smallies.” Again, this activity lasted only for a brief period. There was no evidence of any predator chasing them. Naturally, the irony of this situation was not lost on us—here we are trying to catch fish in the traditional manner (with little success), and the fish are literally jumping into the boat! The only moral to this story I can come up with is that even a bad day of fishing can be remarkable.—Jon P. Weimer, Alexandria, VA.

Northeast PA pond

I am writing to ask your help in locating a pond. A few years ago there was an article on northeast PA pickerel hotspots, and this article contained information on a small pond located off Route 590 somewhere near Hamlin. I live in Hamlin and

neither I nor any local tackle shops know where it is. All I can remember is that the article said the pond is about one mile from the road and boat access is very limited unless you have a small john boat or canoe that can be carried. I would really, really appreciate any help you can give me. I would like to add that I am a faithful subscriber to the *Angler*. It has helped me a lot over the past few years! Keep up the good work!—Chris Beavers.

Thanks for your kind comment on the *Angler*. The pond you're asking about sounds like Egypt Meadows or Bruce Lake. Both waterways are in a pretty area on the northern end of Promised Land State Park, Pike County. Egypt Meadows is a 60-acre shallow pond off Route 590. Bruce Lake, 51 acres, is about three miles off the road, and boats are permitted, but you have to drag an inflatable or light canoe with you.

I hope this information is helpful. Let us know how you do!—Art Michaels, ed.

In the Navy...

I just read about the new changes in store for the *Angler*—they sound great. I wish you could send what you are describing every month, however. I am in the Navy and haven't lived in Pennsylvania since 1988. It really makes my day when my *Angler* comes in the mail.

I do have a question. When is the opening day of trout season? I am planning a trip home this spring (I live in southern Spain) and if possible, would like to coordinate a fishing trip to Centre County with my Dad and brother. We haven't gone fishing on opening day for years.—Ronald A. Nosek, U.S. Naval Hospital, Rota, Spain.

Opening Day this year was April 12.

Northwest PA memories

I have been receiving *Pennsylvania Angler* for a good many years. I first got the *Angler* when I worked on the new part of the Kendall refinery about 30 years. I worked with men who had the magazine in the workshop. I sent for it then and have been getting it ever since. When the boating magazine came out, I got it, too. I have enjoyed both magazines.

I have fly fished in many of the streams in McKean, Warren, Potter and Tioga counties. The man who got me fly fishing was Pat Ryan. He worked the Bradford oil fields. He and I fished almost every weekend. Pat

died in 1976. We fished Kinzua Creek before the big dam was built, Sugar Run and the Allegheny River.

I have fished with my boat in the reservoir many times with friends from Warren. I worked on the new rebuilding of the United refinery at Warren in 1980 and 1981. I am from Lockport, NY. My friend who worked there and I fished below the dam almost every night that we were at the refinery—even in the winter.

So I have enjoyed both magazines. They are great. Keep them in one magazine. You are doing a great job.—James Daigler, East Amherst, NY.

The bass and the snake

If ever I wished that my fishing partner Tim were by my side, it was at this moment in my angling career, when I miss him the most. I was alone at our favorite spot in a secluded pond where we can always be found fishing for our mutual friends, large-mouths.

Actually, it was a slow night, but just having the chance to hook into a trophy fish is always worth getting your line wet. This private pond has produced several great fish. I'm currently waiting for my first mounted fish that I caught topping the scales at 7.5 pounds and measuring 23.5 inches in length.

I was bouncing a blue rubber worm on the bottom with a slow retrieve when I felt just a little bump. I cleaned up the slack, felt the fish and immediately set the hook. “Bang!” He was on and I was confident that I got a good set. When playing the fish, I knew it was a big bass. As a matter of fact, I could barely move him for about 30 seconds.

After a great fight, I finally landed this football-like bass. He went about 6 to 7 pounds. Then, I could not believe what my eyes were seeing. It was the head of a 12-inch snake that the largemouth was in the process of eating. It was amazing as I reached for the bottom lip to see this sight. I knew from the start that I wanted to release the fish, so I carefully held the fish until it had completed the act of swallowing the snake. Then, I was able to see the live snake twist and turn inside the stretching stomach of the bass. After witnessing this, I decided to release the fish to fight another day. It was an amazing act to see, the snake, me and the fish all wondering what to do.—James Olson, Lockport, NY.

A SERIOUS Walleye Angler's TACKLEBOX

by Mike Bleech



All you really need to catch walleyes, besides luck and good timing, are a few types of lures.

Amid all the hype over hot new lures and fishing tactics, there are a few lures and other tackle that show up in nearly every walleye expert's tackle box. This is the stuff the pros use when the camera is not on them, the stuff the local experts use when they get really serious about catching walleyes. It is the stuff that gives me confidence wherever I fish for walleyes.

As walleyes have become increasingly popular during the past couple of decades, they have received increasingly more attention from both the print media and television, and from the advertising that supports these media. There are even at least a few major walleye tournament circuits. In the struggle to provide material that is fresh and entertaining, walleye anglers are bombarded with news about fishing tools and methods that can be confusing, even to seasoned walleye anglers.

Is it necessary to carry all the new lures and other new tackle? Of course not. Most of what is touted as "new" is really not new. Most of these items are just various slants on old themes. Some of the new stuff can make walleye anglers more efficient. Some just makes tackle boxes more colorful. Giving every new walleye lure you see or read about a fair try is mathematically impossible. There just is not enough time. Attempting to do so is a waste of time.

All you really need to catch walleyes, besides luck and good timing, are a few types of lures. Within reason, whichever specific lures of each type you use is not critical. Certain lures that for whatever reason seem to be unusually effective are exceptions. You might have a dozen lures of the same type, but only one catches fish when nothing else will.

Leadhead jigs

Leadhead jigs are the most versatile of all walleye lures. They are to walleye fishing what plastic worms are to largemouth bass fishing. They can be fished at any depth. They can be cast and retrieved, jigged vertically, even trolled and drifted. They can be any color. They can be any size or shape. They can be retrieved in any fashion, at any speed, given any kind of action. They can be effective at any time of the year.

If a walleye angler had to pick one type of lure to use exclusively, that one lure would have to be a leadhead jig.

The leadhead is only the basic component of a leadhead jig. To complete the lure, add a body made of plastic, hair or feather, or add bait either to a plain or a dressed leadhead. A leadhead is a bit of lead cast onto a special type of jig hook.

This lead can be cast into any shape. Though each shape has its purpose, you can get by just fine using only round leadheads with barbed collars. They work fine with soft-plastic bodies and with bait, or you can trim off the barb and tie on bucktail.

It is necessary to carry only three or four sizes of jigs, but plenty of each. Leadheads must be considered expendable. You will lose plenty. My tackle box includes 1/8-ounce, 1/4-ounce, 3/8-ounce, and a few 5/8-ounce leadheads.

Even though bucktail or feather jigs are excellent walleye lures, and often I wonder if they might, at times, be better than plastic, plastic jig bodies are so convenient. Often I go fishing for walleyes without a bucktail jig in my tackle box. With plastic, all you have to do to change color, size or shape is switch bodies. With bucktail you have to break off the leadhead and re-tie the line.

Plastic jig bodies are the most versatile part of your tackle box, so carry an ample selection. Some of the basic colors are white, yellow, chartreuse, orange and brown, and lime-green, but a serious walleye angler's tackle box is likely to contain dozens of colors and color combinations. Most walleye jig bodies should be 3 to 5 inches long, but you might want a few larger bodies, also. At least three-quarters of my jigging is done with screw-tail plastic bodies. Carry as many shapes as you want, though. They pack well.

Floating-minnow lures

Slender minnows like shiners are such a large part of the walleye diet in most good walleye waters, so it follows that a good share of your walleye lures should be of this shape. Floating minnow lures are shaped and often colored like shiners. They are very purposely minnow imitations, though sometimes their colors are not at all minnow-like.

These lures are lightweight, which adds to a lifelike action that heavier lures cannot duplicate.

Some of the most important information for walleye anglers is knowing which tackle to use at any given depth. Floating-minnow lures have small bills, or lips, that make them dive from a few inches to a few feet while retrieved. They are often twitched at the surface for other game fish. But for walleyes, an underwater retrieve is almost always better. While casting, maximum depth for these lures is about 5 feet. Trolling will get some below 7 feet. These lures can also be trolled to virtually any depth



Leadhead jigs are the most versatile of all walleye lures. They can be fished at any depth. They can be cast and retrieved, jigged vertically, and even trolled and drifted. It is necessary to carry only three or four sizes of jigs, but plenty of each. Leadheads must be considered expendable. You will lose plenty. My tackle box includes 1/8-ounce, 1/4-ounce, 3/8-ounce and a few 5/8-ounce leadheads.

behind trolling sinkers, diving planes and downriggers.

Diving crankbaits

Diving crankbaits get a much larger share of the press than their actual usefulness on walleyes deserves. Certainly they have their uses. They are good tools for quickly covering a lot of water. They are sometimes very effective in colored water, in the frequent low visibility of Pymatuning, for example.

The term "diving crankbaits" covers a lot of territory. Basically, these are plastic-body or wood-body lures that have long bills which make them dive. Some float at rest; some sink. They come in various shapes. I suggest that some are shiner-shaped.

The depth to which the multitude of diving crankbaits dives varies considerably from lure to lure, and depends on line diameter, length of line, whether you are casting or trolling, and other factors. This is one reason these lures do not catch more walleyes. Getting them to the right depth is complicated. Walleyes generally will not go a long way to attack a lure, so depth control is very important. Keep your se-

lection of diving crankbaits small enough so you can select the right lure for any depth.

A few diving crankbaits dive beyond 30 feet while trolled. Not many dive beyond 15 feet on a cast.

Nightcrawler harnesses

Nightcrawler harnesses are very popular at some walleye lakes. But overall, they are not used often enough by average walleye anglers. Look among the many tackle boxes of a professional walleye angler, though, and you will learn how valuable these rigs are. I rate them as the top summer walleye trolling lure. If a walleye will not strike a nightcrawler harness, it probably will not strike anything else, either.

A nightcrawler harness, starting at the terminal end, consists of two or three hooks, several colored beads, and one or more spinner blades on a monofilament or wire leader. Wire is necessary only in waters where pike or muskies frequently cut the monofilament harnesses.

Some type of weight must be used to get nightcrawler harnesses underwater. I have found that trolling weights built on wire frames are most resistant to snags.

A SERIOUS Walleye Angler's TACKLEBOX

Vertical jigs

The most accurate way to present lures or bait to walleyes is to position a boat right over them. This also minimizes the amount of line between angler and fish, increasing sensitivity and hook-setting efficiency. Several lures were designed for vertical jigging. They can be grouped as jigging spoons, swimming jigs and leadheads. These are the same jigs used for ice fishing.

All vertical jigs are used about the same way, by raising and lowering the rod tip, but with subtle adjustments. Adding bait almost always improves jigging spoons and leadheads. Vary the jigging action of spoons or leadheads in the length and speed of the lifts, and in the duration of pauses between lifts. Allow them to drop with slack line. Spoons flutter down a bit more slowly than leadheads, so allow slightly longer pauses between lifts.

Adding bait may impede the action of swimming jigs such as the Rapala Jig or the Airplane Jig. Like other vertical jigs, you give them action by raising and lowering the rod tip. The difference is that the shape of a swimming jig causes it to veer away from a vertical drop, then swing in pendulum fashion, or in a figure 8. You must allow them several seconds between rod tip lifts so they have time to "swim." Walleyes might hit these jigs when they are jigged quickly,



Diving crankbaits are good tools for quickly covering a lot of water.

but this misses the intention of swimming jigs. Fish them very slowly.

Hooks, sinkers, other rigging

A large share of your walleye fishing, if you pick your methods by their relative efficiency, will be done with live bait. Already live bait has been mentioned in combination with artificial lures. You should also be prepared to use live bait alone, or with minor rigging.

The basic live bait rig is a single hook at the terminal end of the line and a splitshot pinched to the line above the hook. Most variations involve the sinker. Sometimes a swivel is tied into the line to

prevent line twist, and to keep a certain amount of line between a sliding sinker and the hook.

With the primary walleye baits—minnows, nightcrawlers and leeches—in mind, a good assortment of hooks is essential. I use a wide gap hook for virtually all walleye bait fishing, usually size 8 for nightcrawlers or leeches, and size 6 to 1/0 for minnows. A few replacement treble hooks for artificial lures can also come in handy.

Consider a special note about hooks. Every hook, including those on artificial lures, gets sharpened before it goes into my tackle box. And a fine hook file should be in every tackle box. Hooks become dull from scraping over rocks.

The sinker assortment is even larger than that of hooks. It includes splitshot in various sizes, and sliding sinkers from 1/8-ounce to 3/4-ounce. There are several varieties of sliding sinkers, but the differences between them are minimal.

Snap make lure changes easier, and they make many lures work better than tying directly to the lure eye. One size of snap is enough, because walleye lure sizes do not vary much, and because one small size is strong enough for the usual 8-pound-test line. Be sure to choose snaps that are rounded to allow free movement of lure eyes.

Similarly, only one size of swivel is necessary—rather small. Be sure to invest in top-quality swivels. Cheap swivels often do not work very well.

Snap swivels are useful only with spinners and spoons. But in most cases, instead



Nightcrawler harnesses are the top summer walleye trolling lure.

of using a bulky snap swivel, I rig a plain swivel into the line, onto the lure via a split ring, tied to the end of a nightcrawler harness, or rigged into a trolling sinker.

Trolling aids

Unlike fish that are usually cover- or structure-oriented, such as bass and sunfish, walleyes roam all over a lake or river. For this reason, trolling or drift fishing occupies a lot of serious walleye anglers' fishing time. A few trolling aids, some of which are recent innovations, have become standard tackle.

The most basic trolling and drift fishing aids are trolling sinkers constructed on wire frames. One style, built on a V-shaped wire, became popular only during the 1980s. Effective as these trolling sinkers are, they are not a great improvement over the chugging irons that anglers have been using on Lake Erie for at least 40 years. These trolling sinkers produce excellent sensitivity to the bottom, and they are reasonably snag-resistant. I suggest wire-frame trolling sinkers from 3/4-ounce to at least 3 ounces.

A new addition to my trolling aids is an assortment of snap-on sinkers, which make adjustments in trolling weights a snap, literally.

Diving planes are a different approach to deep trolling. You could get by without these in most waters. The only Pennsylv-



Lures like these were designed for vertical jigging.

nia water where they are used frequently is Lake Erie. Nonetheless, a pair of them helps fill that big space in the bottom of large tackle boxes. And they provide a means to fish for suspended walleyes, which are often the largest walleyes in a lake.

Planer boards fill out the basic trolling aids. Though relatively new on the scene, and maybe too big for your tackle box, they can put extra walleyes in your boat. You do not need the large planer boards, mast and the rest of the rigging that goes with them. The smaller, in-line, detachable boards are perfect for nearly all walleye fishing.

Handy extras

Though not necessary to catch walleyes, a few other articles that will fit in a tackle box can improve the experience of walleye fishing. A small camera, for example, can capture the images of a good fishing trip, including those walleyes you catch and release. Most good walleye anglers eventually release the larger walleyes they catch. These fish are the breeding females. Smaller walleyes are better-tasting, anyway.

A scale is also handy for catch-and-release anglers. If you are looking for a 10-pound walleye for the wall, a scale helps you avoid taking home a 9 1/2-pound walleye that you would rather release.

A small first aid kit, a fire-starting kit, and a couple of candy bars are here, too, for the unexpected.

Final note about tackle boxes

After all of this about a walleye angler's tackle box, I have to admit that I do not have a walleye tackle box. I carry my gear in a waterproof duffle bag, with most of the tackle in small plastic boxes. This way, I just take the small boxes I need for whatever kind of fishing I intend to do. And the duffle bag stores more gear than any big tackle box I have seen. What a huge advantage this is on extended fishing trips when it is hard to anticipate what tackle will be needed. It even has space for rain gear, gloves and maybe an insulated vest.

A line clipper and a whistle are attached by elastic cord to the handles of the duffle bag. I added the clippers at the suggestion of my dentist, who is also a fishing buddy, and the whistle satisfies the boating regulations.



The author carries his gear in a waterproof duffle bag, with most of his walleye tackle in small plastic boxes. This way, he just takes the small boxes he needs for whatever kind of fishing he's doing.



the NEW INFLATABLE PFDs

by Seth Cassell

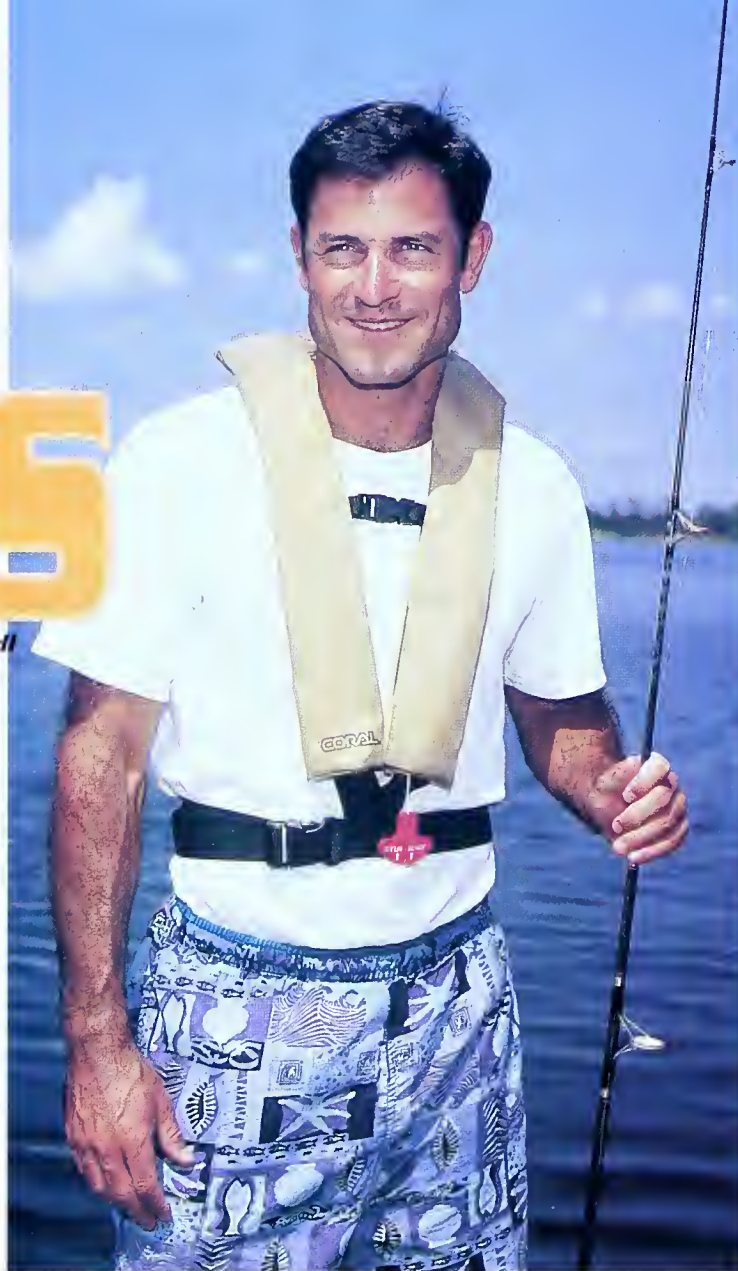
It's probably safe to say that the number one reason why people don't wear life jackets is because of comfort. Many boaters and anglers don't enjoy donning a cumbersome, bulky PFD on a hot July day. Fact is, though, that PFDs save lives, so boaters and anglers often find themselves choosing between personal comfort and safety.

There is another option, however—inflatable life preservers. These lightweight preservers, which are intended to inflate on accidental impact with the water, were recently approved by the U.S. Coast Guard as a Type III PFD.

Most boating-related fatalities in Pennsylvania occur when small boats unexpectedly capsize, says Heidi Milbrand, Pennsylvania Fish and Boat Commission Aquatic Resource Program Specialist. "Most of these fatalities could be prevented if people wore life preservers. The main reason people don't is because they're too hot or uncomfortable, or because some people are too 'macho' to wear one," she said.

"I suspect inflatables will be the most popular with small-boat anglers and canoeists, where people don't expect to need a preserver, but where donning one is a safety precaution," Milbrand added. "I'm not sure how widespread their use is going to be, though, because inflatable life preservers cost more than traditional ones. I'm not sure people who don't already wear life preservers will pay over \$50 for an inflatable model."

The whole idea behind inflatable life preservers is to save lives. "The intent is to reduce the number of boating fatalities for people who don't normally wear PFDs because they are too hot or uncomfortable, or because they get in the way," said Ray Stickler, director of materials management and product development for Stearns



Inflatable life vests benefit anglers and boaters who don't usually wear PFDs because they think they are too hot or uncomfortable.

Manufacturing Co., and president of the PFD Manufacturers Association.

"With these new inflatables, you can hardly tell that you're wearing one. I think because of this they will definitely save more lives."

There are three ways in which an inflatable PFD can be inflated. To date only manually actuated ones have been approved. To inflate them, one must pull a chord, which sets off an actuator that punctures a hole in a bottle of carbon dioxide, filling the preserver with air. They also can be inflated orally.

The other way doesn't involve any action on the user's part. The PFD automatically inflates when contacted with water. What happens is a water-soluble chemical paper product or pill-type object dissolves instantly when contacted with water, setting off the actuator and releasing the carbon dioxide. These preservers also have manual backups.

Inflatable PFDs have been around for a long time, but it wasn't until recently when the first ones were approved for use by the Coast Guard. The main concern with inflatable PFDs before approval was that they would not be properly maintained by users, says Stickler.

So in 1989, the PFD Manufacturers Association, on its own initiative, submitted a proposed inflatable PFD standard to the Coast Guard. "We had to make sure they were user-friendly," Stickler said. "We wanted to make sure people could easily determine whether the inflating mechanism was ready to use and that they could easily re-pack and re-arm them. Significant progress in these areas had to be made before they were approved."

In response to its proposal, the Coast Guard gave a grant to Boat U.S. Foundation, a non-profit organization, to conduct a study to verify that consumers would indeed maintain inflatable PFDs. The Foundation issued preservers, and then arbitrarily recalled them to see if they had been properly maintained. Using these data, the PFD Manufacturers Association, Underwriters Laboratories and the Coast Guard cooperated in completing the final standard for inflatable preservers.

On November 26, 1996, the first three models of inflatable PFDs received approval from the Coast Guard. Stearns, Sporting Lives and Ero Industries were the manufacturers.

Before approval, however, new inflatables had to be run through a series of tests conducted by Underwriters Laboratories. Preservers had to be discharged in a variety of conditions and were tested in areas such as flame, abrasion and temperature resistance. Their buoyancy and effectiveness in a variety of water conditions were also tested using human participants.

When this issue went to press, only Type III manual inflatables had been granted approval. But Sam Wehr, staff engineer in the Coast Guard's Fire Safety Division, says that Type II and even Type I inflatable PFDs are on the horizon.



"It is possible that a Type II will be given approval by January [1997], he said. "This type of inflatable would be automatic and would have more total buoyancy. We hope that a Type I inflatable is also possible in the future. This PFD would have an indicator on it that would tell the user whether the carbon dioxide cylinder is new or old. This would tell people if they accidentally installed a used cylinder. One such indicator has already been developed, but right now it is not economically feasible," Wehr says.

Right now, inflatable PFDs are basic, but look for them to become more specialized in the future. Stearns is one of the companies developing products directed to certain activities.

"Right now we're working on developing inflatable PFDs designed for fly-fishing, sailing and boat racing," Stickler says. "We also have a belt-pack in the works. It would simply look like one of the common fanny packs that you see people wearing today. "We've been making the fly-fishing vest

This PFD is the inflated version of the PFD on the opposite page.

for a long time," Stickler says, "and it's very popular. Now we're working on a new version that will meet the new standards and gain approval."

Mustang Survival is another company that manufactures inflatable PFDs. However, when this issue went to press, the company did not have an approved model available. According to Annette Baker of sales and marketing coordination, it has a model that is close to approval.

"We pride ourselves in making heavy duty material that is designed for wearability and is built to last," she says. "For instance, our inflatables are made out of 400 denier nylon. The Coast Guard requires only 100 denier."

"In addition," she says, "we also use a chemical paper actuator in our automatic inflatables, which has a lower incidence of spontaneous inflation and has a greater longevity than other types of actuators."

She then added, "We make inflatable preservers for NASA and the U.S. Air Force. Our recreational inflatables are built using that same technology."

Ero industries, which makes the Coral inflatable PFD (USCG approved), is also developing a Type III automatic inflatable in addition to a belt-pack inflatable. "We want to make a better belt-pack than what's already out there," said Ralph Steger, director of engineering. "The belt-packs that are already available require a person to slip a yoke-like arrangement over the head. This can be difficult in the water when the air bladder is fully inflated, or if you are not an average-size person. We'd like to make it easier for the user to fully don the preserver."

According to Steger, Ero's inflatables have a feature that is unique. "Ours has a full fabric cover over the air bladder," he says. "This provides an additional layer of protection to the air bladder from punctures and abrasion. In addition, the added layer provides extra support for the air bladder and protects against over-pressurization."

One of the primary advantages of an inflatable life preserver is that unlike inherently buoyant PFDs, Type II and III inflatables will be designed to turn an unconscious person face-up in the water. Also, inflatables have greater buoyancy, which will hold a wearer higher in water. In addition, inflatables are more comfortable, easier to wear for an extended period and take up less storage space.

There are several disadvantages to using inflatables preservers. They are generally more expensive than traditional preservers. Users must also maintain them properly for them to work, and they have to re-pack them once they have been inflated. Routine maintenance checks are highly recommended. Also, once it is used, the gas cartridge must be discarded and reloaded with a new one.

Inflatable preservers aren't for everyone. Those who don't plan on properly maintaining and testing them should stick with inherently buoyant PFDs. Non-swimmers should avoid inflatables, as well as persons younger than 16 year old or less than 80 pounds. Keep in mind, too, that inflatables are only for general boating and fishing, and should not be used for waterskiing, jet ski operation, whitewater rafting and other activities where high impact is possible.

All in all, though, if you'll wear one and maintain it, an inflatable PFD may someday save your life.



Pennsylvania Angler and Boater SURVEY RESULTS

by Tom Ford

The Pennsylvania Fish and Boat Commission is keenly interested in customer opinion. With a mission of "providing fishing and boating opportunities through the protection and management of aquatic resources," the Commission is clearly challenged to meet customer demand. However, the Commission's "Resource First" motto should make it clear that user demand will not be met by compromising resource protection or scientific management of the resource.

There is often considerable flexibility in the range of management options that the Commission can implement. This is where customer opinion, measured in a valid manner, is invaluable. We strive to provide customers with what they want, but we must have a reliable way of defining customer opinion. Statistically valid surveys are the instruments that best let the Commission accomplish this.

The Commission has completed many targeted surveys over the years, most notably the Trout Angler Telephone Survey in 1991. But a recent comprehensive sounding of customer opinion was lacking until this year. Before 1996, the most recent comprehensive customer survey completed by the Commission was in 1974. Now with a recent survey that reflects customer opinion on a broad scope of issues, the Commission is better positioned to develop management strategies and to make informed decisions on agency and resource management issues.



There were three major research areas covered in the 1996 Angler/Boater Survey. They were: 1) angler and boater opinion and preferences for Commission programs, 2) angler and boater support for alternative funding mechanisms, and 3) angler and boater opinion on current management issues.

In early May 1996 the Commission executed a contract with Responsive Management, a firm specializing in fish and wildlife survey research, for a statistically valid tele-

phone survey of PA anglers and registered boaters. Anglers and registered boaters were selected using a random method to ensure that the opinions gathered accurately represent the opinions of all customers. The survey included interviews in the spring and early summer of 1996 with 500 resident anglers, 200 nonresident anglers and 250 registered boaters.

Results show that anglers and boaters have a strong positive opinion of the overall performance of the agency (see Figure 1).

FIGURE 1

Would you rate the overall performance of the Pennsylvania Fish and Boat Commission as excellent, good, fair, or poor?

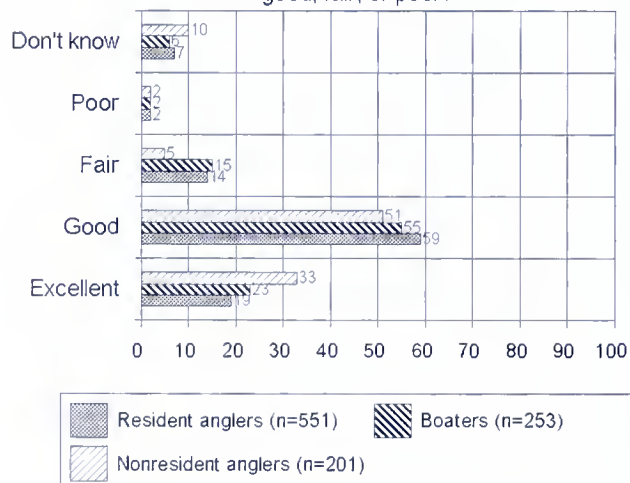


FIGURE 2

Resident Angler and Boater Satisfaction with Core Commission Programs

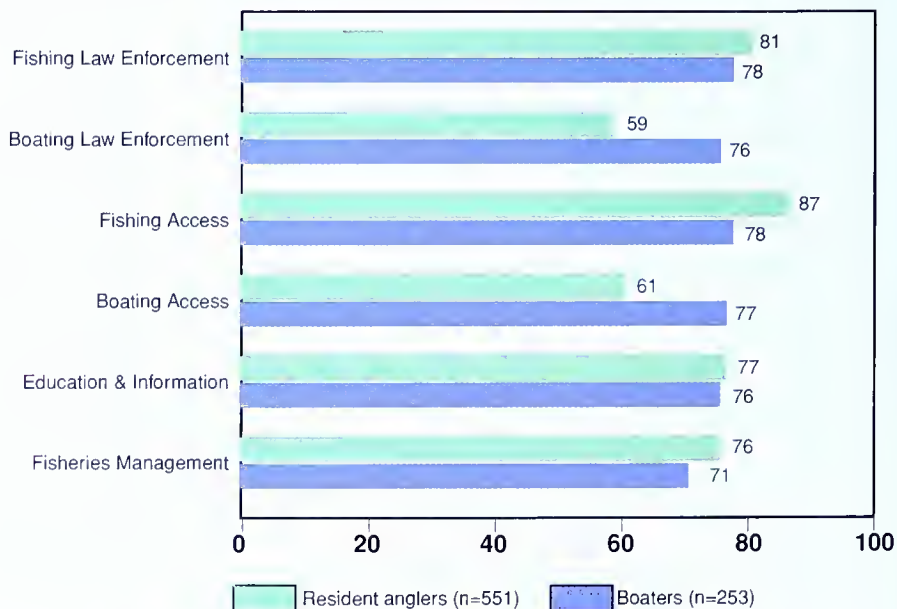
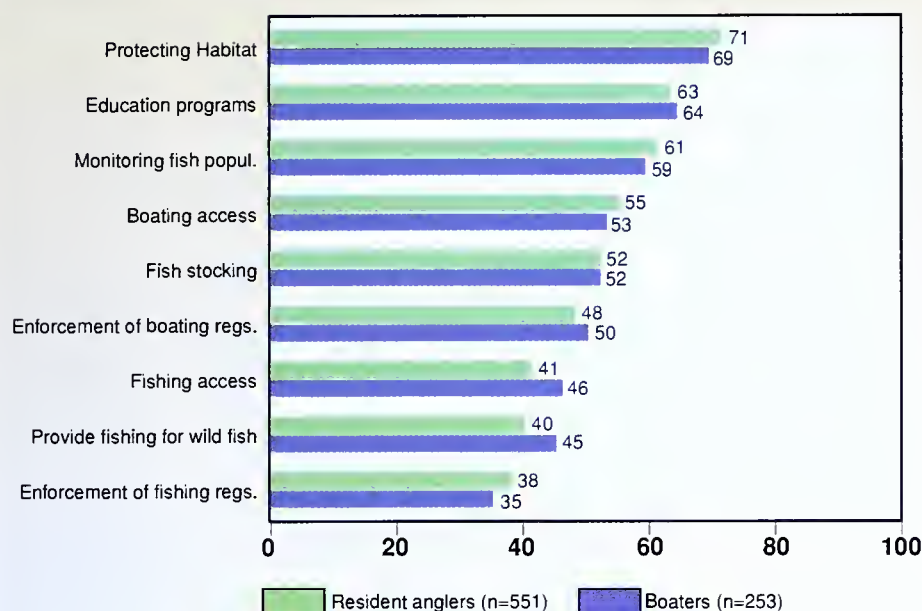


FIGURE 3

Percent who think the Commission should spend more effort on these activities:



Eight of every 10 respondents rated the Commission's performance as good or excellent. As far as support for the sport of fishing, a recent survey of all Commonwealth citizens shows that legal fishing is supported by 95 percent of Pennsylvania citizens.

Respondent satisfaction with specific agency programs is also very high (see figure 2). For example, 81 percent of resident angler respondents were satisfied or very satisfied with fishing law enforcement, and 76 percent of registered boaters were satisfied or very satisfied with the Commission's efforts to enforce boating laws.

The Commission often hears from and responds to the minority of individuals who are dissatisfied, so the survey results certainly help the Commission to put the day-to-day complaints into their proper perspective. It is refreshing to see such a

high level of customer satisfaction with all Commission programs.

When PA anglers and boaters were asked which program areas they would like the Commission to spend more effort on, they identified protecting habitat, education, and monitoring fish populations as their top three choices. The angler and boater opinions displayed in Figure 3 are not very different because 79 percent of registered boater respondents own their boats primarily "to fish" or "to fish and boat."

Other surveys reinforce the conservation ethic indicated by the strong support for habitat protection. In a recent survey funded by the Wild Resource Conservation Fund, more than 95 percent of anglers surveyed indicated that restoring and improving habitat and managing and conserving endangered fish and wildlife are important Commission functions. It

SURVEY RESULTS

is apparent that anglers not only support Commission efforts that directly benefit them, namely managing the state's fisheries to provide fishing opportunities, but also the Commission's broader species conservation mandate.

Several questions were asked about fishing importance and motivation to fish. It is interesting to observe that more than half of resident angler respondents rated the importance of fishing between an 8 and a 10 on a 10-point scale in relation to other activities in their lives. The primary motivation for fishing in Pennsylvania, by resident anglers and nonresident anglers, proved to be quite a surprise to many. When respondents were asked to identify their main reason for fishing, they identified relaxation (54 percent), sport (20 percent) and to be with friends and family (13 percent) as the top three reasons (see Figure 4). Only a combined 6 percent of resident angling respondents indicated that catching fresh fish, catching large fish or catching many fish was their main motivation. When nonresident anglers were asked what attracted them to go fishing in Pennsylvania, the top reason was "to be with family and friends" (see Figure 4).

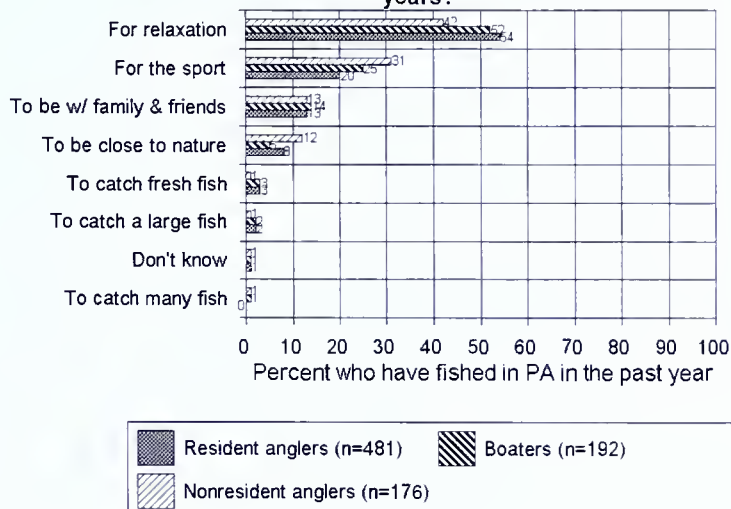
Customer opinion of specific fishing opportunities was also measured in the survey. Figure 5 shows that the species most frequently targeted by Pennsylvania resident anglers are trout, sought by 63 percent of anglers, and bass, targeted by 62 percent. Other species commonly targeted include walleyes (20 percent), panfish (18 percent) and catfish (13 percent). Eight percent of resident anglers target any species and 6 percent fish for perch and muskies. Four percent of resident anglers fish for carp, 3 percent fish for pike, 3 percent for striped bass and less than 2 percent each fish for pickerel, salmon, shad and steelhead.

The second major research area addressed in the survey was support for potential alternative funding mechanisms. The results appear in Figure 6. Many alternatives were first identified in the public workshops the Commission held in late 1994 and early 1995.

Two of these alternatives may not be clear in Figure 6. The \$5 annual access fee for users is a fee to be paid by users of Commission-owned access sites. The "water tax" is a potential consumptive use of water tax on large-volume users of water.

The alternative funding mechanism with the highest level of resident angler support

FIGURE 4
What was your main reason for fishing in the past 2 years?



Pennsylvania Angler and Boater SURVEY RESULTS

FIGURE 5

Note: Resident angler satisfaction with the various fishing opportunities is generally very high. Species not listed are targeted by fewer than 3 percent of our resident anglers.

Targeted Species	percent Resident Anglers Targeting	percent Resident Anglers Satisfied
Bass	62 percent	79 percent (30 percent very satisfied)
Carp	4 percent	60 percent (46 percent very satisfied)
Catfish	13 percent	81 percent (34 percent very satisfied)
Musky	6 percent	67 percent (41 percent very satisfied)
Northern Pike	3 percent	79 percent (29 percent very satisfied)
Panfish	18 percent	88 percent (55 percent very satisfied)
Perch	6 percent	80 percent (33 percent very satisfied)
Striped Bass	3 percent	77 percent (31 percent very satisfied)
Trout	63 percent	74 percent (35 percent very satisfied)
Walleye	20 percent	69 percent (20 percent very satisfied)

FIGURE 6

Percent who support the following ways to help fund the Fish & Boat Commission's efforts:

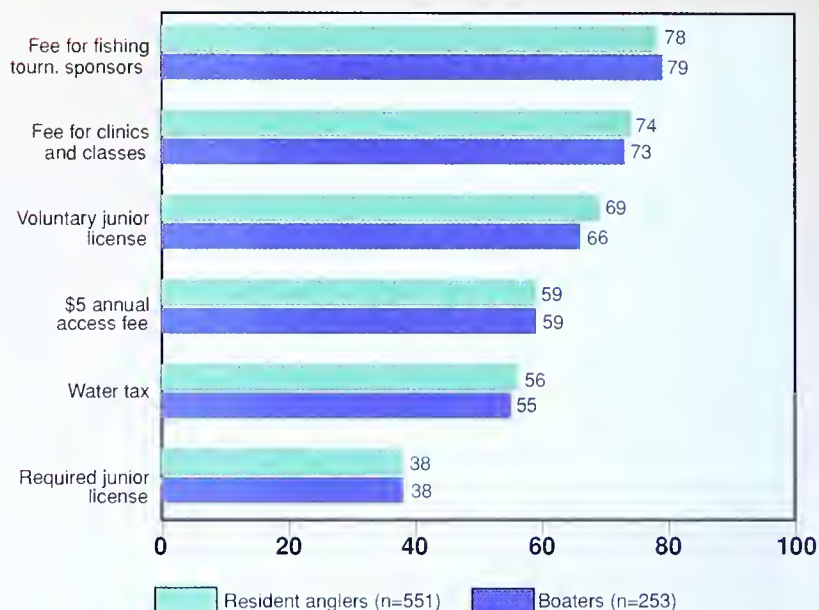


FIGURE 7

Do you agree or disagree that fishing regulations are clear and easy to understand?

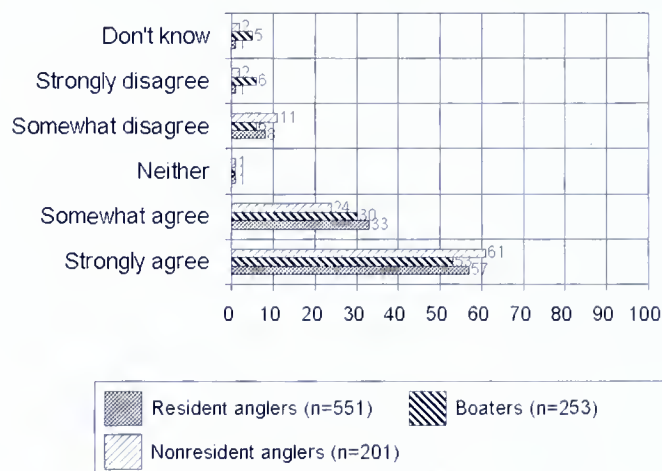


FIGURE 8

Do you agree or disagree that boating regulations are clear and easy to understand?

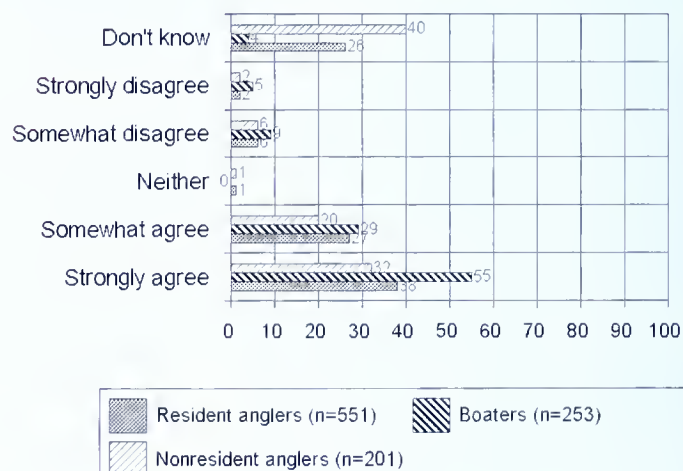


FIGURE 9

Do you support or oppose fishing regulations such as more strict size limits or creel limits?

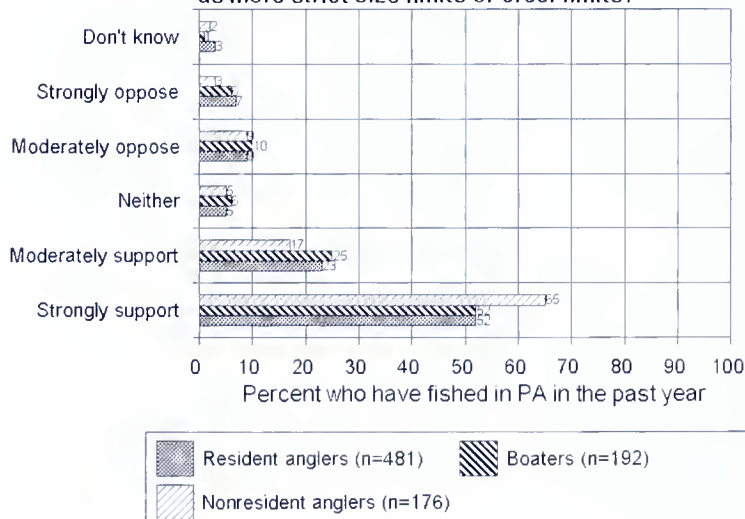
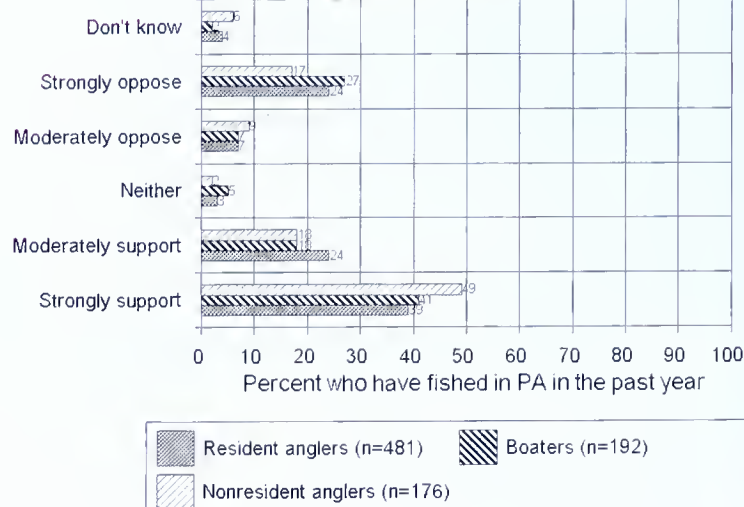


FIGURE 10

Do you support or oppose a catch-and-release fishing season for bass?



is the fishing tournament fee (78 percent). The least supported funding mechanism is the required junior fishing license. It is opposed by 62 percent of resident anglers.

The third major research area addressed by the survey was customer opinion on "hot" management issues. There were approximately 10 questions asked, ranging from thoughts on the complexity and clarity of Commission regulations and changes in bass and panfish regulations to support for mandatory boater education.

Figures 7 through 14 show customer opinion on a wide variety of these management issues. For example, Figure 13 shows that 80 percent of registered boat owner respondents and 85 percent of resident angler respondents support a mandatory boater education course for people

who operate motorboats in Pennsylvania. The Commission is considering the data in these figures in the development of future initiatives, program changes and regulatory modifications.

Some things to note on the various figures:

- Figures 7 and 8 show strong agreement that fishing and boating regulations are clear and easy to understand.

- Figure 9 shows strong support for more strict size limits or reduced creel limits where they enhance fishing opportunities.

- Figure 10 shows a majority of support for a catch-and-release fishing season for bass from mid-April to mid-June.

- Figure 11 shows support for stricter size limits on panfish on selected study waters.

- Figure 12 shows strong support for the restoration of anadromous fishes.

- Figure 14 shows a mixed but slightly supportive opinion on whether anglers and boaters would like to see more tournaments in Pennsylvania.

The overall positive results from the angler and boater survey do not mean that the Commission can sit back and rest on its laurels. On the contrary, there is room to improve customer satisfaction. In the future the Commission will be using customer satisfaction as a program evaluation tool in addition to measuring the cost efficiency and effectiveness of programs. Like any smart business, the Commission must understand who its customers are and what they want. Surveys are one way the Commission is ensuring that customer demand is being met.

Tom Ford is the Commission Agency Aquatic Resources Planning Coordinator.

FIGURE 11

Do you support or oppose a size limit on panfish on selected study waters?

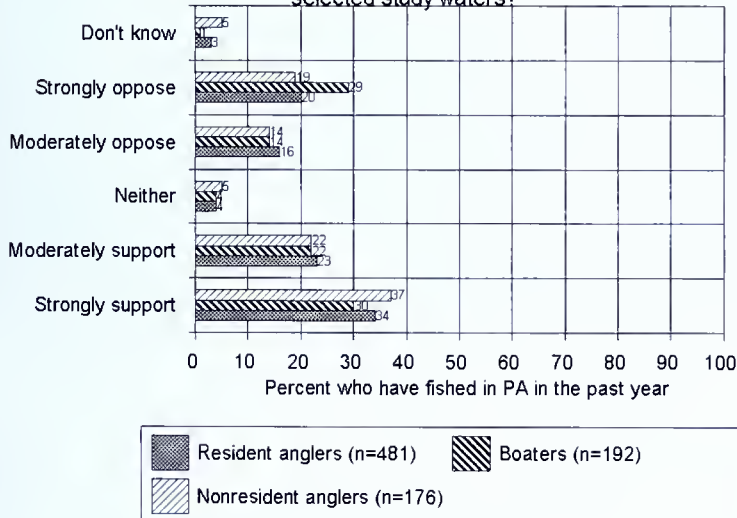


FIGURE 12

Do you support or oppose the Commission working to restore migratory fish species such as American shad?

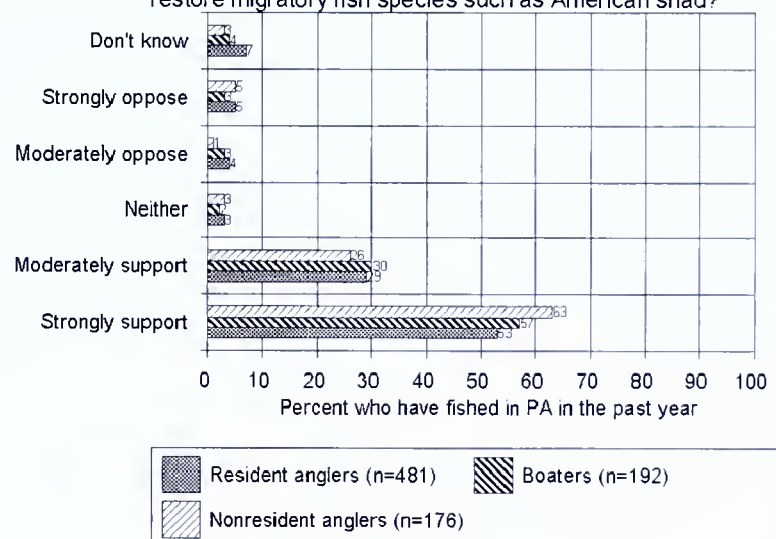


FIGURE 13

Do you support or oppose requiring a boater education course for all people who operate motorboats in Pennsylvania?

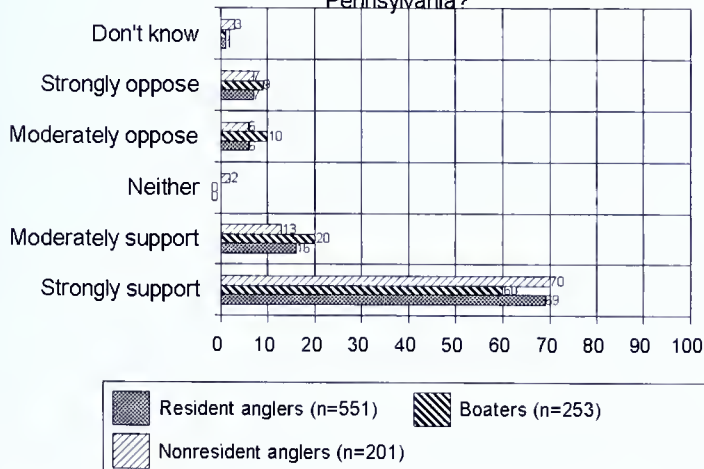
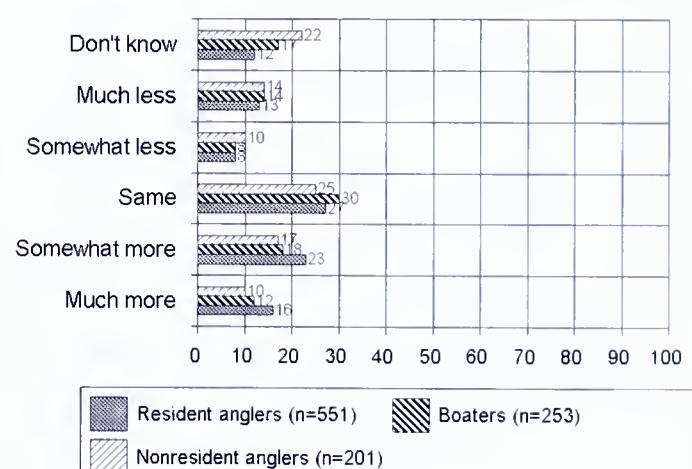


FIGURE 14

Would you like to see more, the same, or less fishing tournaments in Pennsylvania?



1987-1997



10 Years of "Resource First"

by Dan Tredinnick



13-inch wild brown trout

To enjoy anything for a lifetime, you must also preserve it. But wait—how do you conserve something while using it at the same time? No, it's not a riddle, though it certainly is a tricky question. It is a paradox that faces the Fish and Boat Commission daily. Parts of the Commission's duties include the protection of the state's aquatic resources. Yet simultaneously, the Commission's role is also to encourage use of those resources, namely, by anglers and boaters. So what is the solution to this apparent dilemma? Something has to give. The answer may be summed up in two short words: Resource First.

Ten years ago, in 1987, the Commission officially adopted "Resource First" as its motto. It's more than just a slogan, however. Resource First embodies a commitment by the agency to preserve, protect and enhance the state's aquatic environment as its foremost calling. After all, without the resource, there are no opportunities.


The strongest weapons in the Commis-

sion arsenal are those that directly protect our waters and its inhabitants. Direct efforts to protect the resource include extensive work to survey and inventory valuable resources. This information is used in several ways. Each year the Commission uses this information to review hundreds of permits and other compliance documents. These efforts prevent or minimize harm to waterways and wetlands. This includes permits for strip-mining operations, stream and wetland encroachments from highway construction, power plant construction/operation and waste water management from both solid waste and sewage.

The survey information is also used in the formulation of regulations. These regulations often determine how, when and where fishing and boating take place.

The Commission does not fight to conserve our resources alone. Through educational programs, PA&B and other informative outreach efforts, the Commis-

sion encourages resource users to join in the battle. The tactic is paying off. For example, catch and release of fish, a practice virtually unheard of early in the century, is widely accepted and practiced by today's anglers. In fact, the users the Commission serves are often at the forefront of pushing for and supporting tougher conservation practices. In the most recent survey of residents and nonresidents who fish and boat in Pennsylvania, respondents ranked habitat protection as their highest priority for the Commission.

Does "Resource First" pay off? Judge for yourself. There are 32 fish species for which the Commission maintains state records, and 21 of those records have been established in the past 10 years! That unwavering pledge of Resource First promises a bright future and a lifetime of memories for future generations. 

Dan Tredinnick is the Commission's Press Secretary.

The Wild and Scenic Clarion River

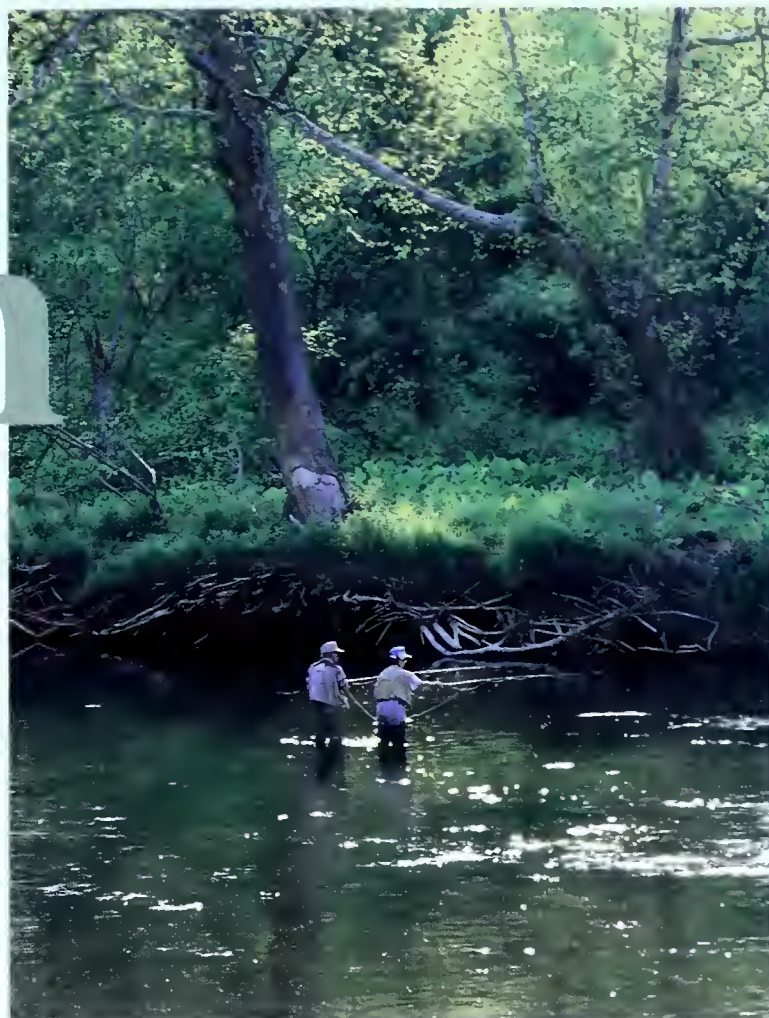
by Mike Sajna

The Clarion River possibly is one of the worst streams in the state. In the region of its headwaters, in Elk County, it is not mine water, but the refuse of various establishments, such as wood-pulp mills, tanneries and chemical factories, which renders the water unfit for life, and finally Toby Creek, emptying into it in the southwestern portion of Elk County, adds its share in the form of mine water. The water of Clarion River, in this region, is black like ink, and retains its peculiar color all the way down to where it empties into the Allegheny at Foxburg; here the deep blackish brown color of the Clarion River water contrasts sharply with the bluish green water of the Allegheny River.

Such was the manner in which Dr. A. E. Ortmann, curator of invertebrate zoology at the Carnegie Museum of Natural History, described the Clarion River in his 1909 report "The Destruction of the Fresh-Water Fauna in Western Pennsylvania." The report details the degradation of western Pennsylvania's waterways as a result of industrialization and remains a valuable document to researchers seeking a base line from which to judge the condition of the region's environment.

My own first encounter with the Clarion River goes back to 1970. I was visiting a friend at Clarion University when a group of us decided to spend an afternoon at Cook Forest State Park. Even now I can remember the smell of the water, a putrid mix of chemicals and wet, rotting newsprint. It seemed bizarrely out of place in the beautifully wooded setting. Everybody kept asking: "What's that smell?" We knew nothing back then about the river's history of tanneries, pulp mills and chemical factories.

I could not help but recall that day more than a quarter-century ago when I stepped out of the Clarion one evening last year and found the downstream side of my waders spray-painted bright-green with caddis fly egg sacks. The last time I had seen caddis eggs in such concentration was on Montana's Big Horn River.



Although the fishing was slow that evening, the sight of so many egg sacks still was exciting. And the only odor in the air was the sweet smell of the surrounding woods.

What happened to the Clarion in the years since Ortmann's report and my first visit to change it from a river "unfit for life" to one teeming with caddises is one of western Pennsylvania's most inspiring environmental success stories. It is a tale that shows how government and private groups can work together for the betterment of the environment; one that was capped last October 19 when President Clinton signed legislation making almost 52 miles of the Clarion a National Wild and Scenic River, including two sections of "scenic" river. They are the only sections of any river in the state with that federal designation.

National Wild and Scenic Rivers Act

Established in 1968, the National Wild and Scenic Rivers Act is designed to preserve rivers that "possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values." To qualify for inclusion, a river must meet four standards. It must be free-flowing, possess outstanding value and have sufficient flow and sufficient length.



The Wild and Scenic Clarion River



A river, or portions of a river, can qualify for inclusion in the National Wild and Scenic Rivers System in three categories—wild, scenic or recreational. “Wild” is the highest of the three designations. It is reserved for rivers that are “free of impoundments and are generally inaccessible except by trail with watersheds or shorelines essentially primitive and water unpolluted. These represent vestiges of primitive America.” There are no rivers in Pennsylvania that fit the “wild” category.

“Scenic,” the next highest designation, is bestowed on rivers, or portions of rivers, free of impoundments with a shoreline or watershed still largely primitive and undeveloped, but accessible in places by roads.

“Recreational,” the third category, is given to rivers, or portions of rivers, that are valuable recreational resources readily accessible by road or railroad. They have some development along their shoreline and might have been impounded or diverted in the past.

The Clarion River’s Wild and Scenic Water begins seven-tenths of a mile below Ridgway and ends 51.7 miles downstream at the slackwater of Piney Dam west of the town of Clarion. In that stretch, two sections, totaling 17 miles, qualify as “scenic” and the other 34.7 miles qualify as “recreational.”

“That’s because of the road,” said Paul Wiegman of the recreational designation. Wiegman is director of Natural Science and Stewardship for the Western Pennsylvania Conservancy, a group that has been instrumental in keeping land along the Clarion in the public domain. “For a river to qualify for a ‘scenic’ designation,” he adds, “it cannot have a road or rail bed running along it.”

The two sections of the Clarion River that qualify as “scenic” run from Portland Mills below Ridgway to Irwin Run, a distance of 4.6 miles, and from Cooksburg at Cook Forest State Park to the slackwaters of Piney Dam, a distance of 12.4 miles. A 10.4-mile section of Mill Creek from Township Road 342 (Howe Bridge) to its mouth also qualifies for a “scenic” designation. There is no direct road access to either stretch.

“I don’t know of any other river in Pennsylvania that would be eligible for the ‘scenic’ designation,” Wiegman said. “There may be sections of the Juniata that could be eligible, but that’s about it.”

The late 1960s

Even though I had no idea at the time, the return of the Clarion River from industrial sewer to National Wild and Scenic River started shortly before my encounter with it in 1970. It began in

the late 1960s, when the forerunner of the Department of Environmental Protection (DEP) opened the Swamp Creek Treatment Plant along the East Branch Reservoir on the East Branch of the Clarion River above Johnsonburg in Elk County. Lime injected into the reservoir by the treatment plant pushed the pH levels of discharges from the impoundment up from the low fives to the low to high sixes, depending on the time of year and the flow of the river.

“That was probably a major impact in making the upper Clarion, from East Branch Lake down to Piney Dam, suitable for fishing,” says Ron Lee, Commission Area 2 Fisheries Manager.

In the years since that first step, DEP has been joined in its efforts to clean up and preserve the Clarion by such groups and individuals as the Fish and Boat Commission, U.S. Army Corps of Engineers, the U.S. Forest Service, Western Pennsylvania Conservancy, the Carnegie Museum of Natural History, Toby Creek Watershed Association, Mill Creek Watershed Association, Clarion River Basin Association, Pennsylvania Historic Resource Survey, Clarion University, Penn State University, former Sen. John Heinz, Sen. Arlen Specter and former U.S. Rep. William Clinger.

Between 1979 and 1992, according to Corps of Engineer’s biologist Mike Koryak, cleanup efforts have dramatically cut annual acid discharges into the Clarion, even in Piney Dam and the lower river, which is not part of the Wild and Scenic Rivers System. For example, Koryak points out, the acid level of Licking Creek has dropped from 100.50 milligrams per liter to 13.6, an 86 percent decline; Piney Creek from 56.1 to 19.4, a 65 percent decrease; and Deer Creek from 47.4 to 24, a 50 percent drop. The decreases have helped trim the acidity of the river itself at Callensburg from 19.3 to 4.6 milligrams per liter, a 76 percent reduction.

The 1970s

Following opening of the Swamp Creek Treatment Plant on the East Branch Reservoir and other efforts to combat acid mine drainage, efforts were launched in the mid-1970s to clean up pulp mill discharges in Johnsonburg. Before that period, according to the Fish and Boat Commission’s Lee, waste from the mill was pumped to a holding facility where it was allowed to settle, and then was released into the river a couple of miles downstream of the town, creating one of the most awful smells imaginable.

In 1976, the Commission responded to the improving river by attempting to establish a trout fishery in its upper waters. Equal numbers of brook trout and brown trout fingerlings were stocked. Within a few years, though, it became apparent that



The Clarion River's Wild and Scenic Water begins 7/10-mile below Ridgway and ends 51.7 miles downstream at the slackwater of Piney Dam west of the town of Clarion.

the brook trout fingerlings were leaving the river and moving up the tributary streams.

"We ended up with these huge numbers of brook trout fingerlings in these little tribs and were just overloading them," says Lee. "They already had wild trout in them that were experiencing naturally slow growth rates because of limited food sources."

Early 1980s

In the early 1980s, the Commission switched its plans and began stocking only brown trout fingerlings in the river. Currently, according to Lee, the Commission stocks about 90,000 three-inch fingerlings annually in the Clarion from its source at the confluence of the East Branch and West Branch near Johnsonburg downstream to Cook Forest State Park. In addition, Lee says the Clarion also receives mature trout that find their way into the river from stocked tributaries.

Although some trout can be found in the Clarion from Cooksburg to the downstream end of the Wild and Scenic River project at the slackwater of Piney Dam, the river in that area is essentially a self-sustaining warmwater fishery with small-mouth bass, channel catfish, yellow perch, rock bass and panfish. The future also could hold some walleyes and tiger muskies. In 1995, the Commission stocked 11,000 tiger muskies from four to six inches, a million walleye fry and 6,500 fingerlings in Piney Dam. Last year, it released another 1,000 tiger muskies, one million walleye fry and 6,500 walleye fingerlings in the same area. Because there are still water quality problems below Mill Creek, stocking efforts in Piney Dam are experimental and use excess hatchery production.

"That sounds like a lot," says Lee of the million walleye fry, "but it's really not a lot because you're looking at low survival in fry in most cases. And it's [Piney Dam] a pretty harsh situation, so if we get even one percent, we'll be happy."

Lee thinks that anglers may start to catch legal-size tiger muskies in 1998 or 1999. Establishment of a walleye fishery, though, is less certain. "I have a feeling we may not have success with those," he adds. "Piney's pretty acidic. But we'll try for a few years and see what happens."

The size of the Clarion River makes it difficult to survey and determine the success of the trout stocking efforts, according to Lee. The last survey of the upper river was conducted in the mid-1980s. It found a low-density but high-quality brown trout fishery. Among the fish taken by the survey crew were wild browns of 23 inches and 18 inches. During about an hour of fishing the evening my waders ended up covered with caddis eggs sacks, I took only

one brown of about 12 inches, but missed three or four other fish, and while canoeing the river earlier in the day spooked a number of other trout.

A lower river survey was conducted in 1995 at Cooksburg and Callensburg below Piney Dam by personnel from the Fish and Boat Commission and Army Corps of Engineers. At Cooksburg, according to Leroy Young, the Commission's hydropower coordinator, the survey turned up five smallmouths, including a 17-inch, and a 22-inch channel catfish, as well as numerous river chubs, rock bass, yellow perch, darters, shiners and other small forage fish. Survey crews also saw a few other large bass.

In the Callensburg stretch of river, which still suffers from the effects of acid mine drainage, surveyors found a 16-inch smallmouth and low numbers of panfish, darters and other forage fish. Piney Dam's discharge itself produced some yellow perch, pumpkinseed sunfish, crappies, largemouths, chubs, bluegills, golden shiners and other forage species. Young says the numbers are higher than in past years, but still low.

One important recent change in the river occurred in July 1996, when the Corps of Engineers and the Fish and Boat Commission persuaded the Federal Energy Regulatory Commission and Pennsylvania Electric Co. to allow increased flows from the East Branch Reservoir to pass through Piney Dam, where they have helped to dilute acid problems in the lower river. Previously, the electric company had detained the water and randomly released it for power generating purposes.

As far as fishing on the Clarion is concerned, the Fish and Boat Commission's Lee says that unlike most rivers and streams he hears relatively little about the Clarion from anglers. He says it seems to be one of those "closed-mouth" waters. Fishermen seldom talk about it, but mention the name in western Pennsylvania angling circles and almost invariably someone will have a friend who regularly fishes it successfully.

"It's one of those fisheries where successful anglers who fish it don't tell others," Lee says. "The other thing is, you have to fish it enough to determine where trout are located. The best trout angling as far as I understand is in the Portland Mills area. As you proceed downstream, it starts making a transition to a warmwater fishery. You may find bass upstream as far as Portland Mills, but the farther downstream you go the better the warmwater fishing."

Ortmann would be astonished by what has happened to "one of the worst streams in the state."



A Pseudocloeon Dun

by Chauncy K. Lively

Most fly fishermen are familiar with the common mayfly hatches—Quill Gordon, Hendrickson, March Brown, Cahill, Green Drake, and others. And increasingly, interest in trout stream entomology has led many anglers to be conversant with the scientific names of the insects, if only to allay the confusion over common names. But despite the growing familiarity with such mayfly designations as Ephemerella, Isonychia, Stenonema and the like, the name *Pseudocloeon* remains an enigma—and hardly a household word among fly fishers.

Indeed, professional entomologists sometimes disagree over the details of this genus. However, in spite of its relative anonymity, I'll wager that most Eastern trout anglers have seen this fly, either as duns or spinners, or both, in the course of everyday fishing, and possibly in great numbers.

Pseudocloeon duns are commonly mistaken for Baetis duns, to which they bear strong resemblance. Both are small, two-tailed mayflies, generally with olive bodies and smoky wings. The most discernible differences between the two genera lie in the wing structure, and you'll probably need a strong magnifying glass to detect them. Baetis have narrow, straplike hind wings that extend crossways along the base of the fore wings. On the other hand, the Eastern species of Pseudocloeon are two-winged mayflies that lack hind wings.

Pseudocloeon nymphs are generally olive-colored, although the intensity of the shade may vary from medium-dark to pale. Once, on Dickies Run near Ft. Loudon, I examined some of these nymphs that were grass-green in color. Unlike other mayfly nymphs, those of Pseudocloeon have only two tails.

Dunbar Creek is a pretty freestone stream that flows through a narrow mountain valley in Fayette County. Despite its bouts with mine acid pollution from time to time in the past, it has been popular with many southwestern Pennsylvania fly fishermen over the years. Although it is not known as a stream with abundant hatches, Dunbar once had a good showing of Pseudocloeon that appeared several times during summer and fall. The duns emerged during the afternoons and in evenings the tiny, copper-bodied spinners would swarm above the pools. Both the duns and spinners provided fascinating and exacting fishing, offering many opportunities for experimenting with fly patterns.



Try this fly when trout are especially fussy and tiny mayflies are on the water.

Sadly, however, during the 1970s a hurricane gone astray swept northward and caused extensive flooding in many parts of Pennsylvania. Dunbar Creek was devastated by the force of the high water and much of its stream bottom was literally swept away. Evidently, the habitat of the little mayflies had been destroyed, for never again did we experience Pseudocloeon on Dunbar Creek.

Trout can be uncommonly fussy when the tiny mayflies are on the water. Obviously, trout possess acute closeup vision and can discern the most minute details of insects as small as the Pseudocloeon. For that reason I dress the dun pattern with fully-shaped wings, a strategy that has paid dividends.

Wonder Wings are formed by reversing the barbules of two medium-sized hack-

les below their tips and tying in a pre-measured length of the prepared hackles, allowing the tips to remain until the wings are secured. After the wings are bound in place the tips are cut off, leaving only the contoured, reversed barbules to remain as wings. These are among the easiest shaped wings to dress in small sizes because the large tips serve as handles with which to manipulate the wings.

Upright Wonder Wings on medium-sized to large flies are subject to being torn apart by trout's teeth. However, in small sizes, 20 or smaller, the tiny wings offer an insignificant target and their longevity is substantially better.

Both the body dubbing and the palmer hackling are wound front to rear and tied off at the hook's bend. The whip finish is made at the rear of the body, underneath the base of the tails. Following the whip finish I remove the fly from the vise and with fine-pointed scissors trim an inverted V on the underside of the hackle. This lets the fly float low on the surface like the naturals.

With a lithe, featherweight rod and leader tapered to 7X, fishing a size 22 or 24 Pseudocloeon Dun to persnickety risers can be one of the most exhilarating experiences I know—win, lose or draw.

Dressing: Pseudocloeon Dun

Hook: Size 22 or 24 Tiemco TMC 101.

Thread: 6/0 olive pre-waxed.

Tails: 2 whitish Microfibetts.

Wings: From 2 medium-sized smoky dun hackles.

Body: Olive natural or synthetic fur.

Hackle: Medium dun.



1. Tie in the thread slightly forward of the mid-shank and wind back to the bend. Tie in the tails, separate the tips and wind between to maintain the spread. Wind over the Microfibtets to the original tie-in and trim the excess.



2. Select two hackles for wings and match them back-to-back. Stroke the barbules downward below the tips to reverse their direction. Determine the wing length (slightly longer than the shank length), cut the hackle ribs at that point and discard the severed lower portions of the hackles.



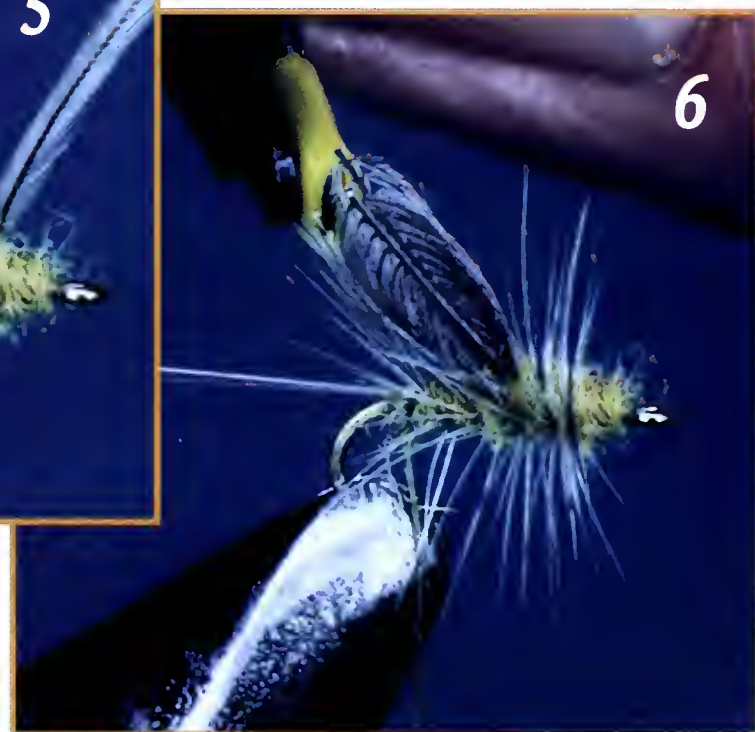
3. Transfer the wing feathers to the right hand, stroke the barbules downward again and hold the barbule tips just below the ends of the ribs. Manipulating the thread with the left hand, tie in the wings by the barbules only at the tie-in point and secure them with several turns. Trim the excess barbules.

4. Grasp the hackle tips together and pull the wings semi-upright while winding behind and between to secure. Then trim off the hackle tips with scissors or nail clippers. Tie in one generic hackle (or two imported hackles) in front of the wings. Apply wax to the thread and pinch-dub the fur.



5. Wind the dubbing from behind the eye to the base of the tails.

6. Wind the hackle open-palmer style from front to rear over the dubbing and tie off over the base of the tails. Trim the excess. Whip-finish the thread under the base of the tails and apply lacquer to the finish winds and to the head. Trim the hackle underneath the shank.





Angling for More Women Anglers

by Linda Steiner

There's a good reason it's called the "angling fraternity," not "sorority." Only one in 10 women fishes, according to the National Survey of Fishing, Hunting and Wildlife-Associated Recreation (1991). Twenty-eight percent of men fish. If you meet a fisherman on the stream, he is likely to be just that, a man. Of anglers nationally, 72 percent are male. With women making up more than half of the U.S. population, that's a pretty poor showing.

Pennsylvania's figures aren't any better, especially when it comes to trout fishing. According to several recent Commission-initiated surveys, only 10 percent of the state's trout anglers are women. That means guys outnumber gals on the trout

stream 9 to 1. When it comes to fishing for something other than trout, women's numbers fare a little better—2 out of 10 people fishing for species like bass and bluegills are female. That's about 200,000 women out of the approximately one million licensed anglers—still a sparse representation in the state.

Yet fishing is fun, it can be as simple or as involved as we'd like it to be, and it puts us in the midst of beautiful scenery. It's a quality time with family and friends, or a chance for some contemplative solitude, and it can provide the makings of a from-the-wild dinner. So why aren't there more of us women out there?

What keeps women from becoming

anglers? No one and nothing, if they have the urge and enough "moxie" to follow through. Women were always free to pick up rod and reel and hit the stream, and some of them always did. But as the statistics bear out, many did not.

Perhaps we didn't become anglers because we weren't independent enough to take up the sport when those around us were not participants. Or perhaps we received little or no encouragement from those who were anglers, when we did want to give fishing a try. We still could have practiced the sport, but without support, it was much more difficult to stay interested, find the occasion to go, and learn how to do it. These are all very human shortcomings, and not limited to whether a person's a man or a woman.

Certainly fishing, and its sister sport, hunting, have always been male-dominated, in the sense of numbers of participants. There is nothing about either, talent-wise or physically, that makes them more suitable for either sex. There was never anything about either sport that women couldn't do, if they wanted to.

Women have, in fact, a long history in fishing. The first recorded angling pub-

lication in English was *The Treatise of Fishing with an Angle*, from the Book of St. Albans, in 1496. It is reputed to be the work of Dame Juliana Berners, who wrote accompanying chapters on hunting, hawking and heraldry. It had a great influence on other early fishing writers, like Izaak Walton, author of *The Compleat Angler* (1653), who is regarded as a sort of “patron saint” of fly fishing. Present-day “great women anglers” include Joan Wulff, who with her husband Lee became a world-renowned fly angler, caster, fly innovator and fly fishing writer.

If we women wanted to fish, as whenever women wanted to enter occupations that were traditionally done by men, we always held the key to the door. As mother used to say, you can do anything you put your mind to ... you just have to want it enough.

How do women, or anyone for that matter, become involved in a pastime like fishing? In an address on “Reversing the Decline in Hunting and Fishing Participation: Successfully Recruiting the Next Generation,” Bruce E. Matthews, of the New York Sportfishing and Aquatic Resources Education Program, identified five elements that are needed to get people involved in outdoor sports. If you are already an angler, from your personal experience you will recognize how right Matthews is, and if you have thought about being an angler but aren’t, you will see where the chain broke for you:

Paraphrasing, the five elements that keep a beginning sportsperson coming back for more are having a “threshold experience” that motivates, access to equipment, knowing places where you can take part in the sport, receiving training, and having the social support of peers, friends or family. All of these factors must be present, said Matthews, if a person is going to continue in the sport after his or her first taste.

There are numerous programs that reach out to young people, encouraging their involvement in fishing and other outdoor recreation. Until recently, no one targeted women, at least not in a national, organized way, which is what makes the Becoming an Outdoors-Woman program so welcome. Becoming an Outdoors-Woman helps answer many women’s concerns about “how do I get started?” in a fun format, with no pressure, no competition, and lots of peer support.

Birth of the program

What is the Becoming an Outdoors-Woman program, and how can you or



Students spent time honing their casting skills, and several in the class caught their first fish.

someone you know get a “leg up” on fishing and other outdoor sports through it? Becoming an Outdoors-Woman was developed to help break down what were discovered to be the main obstructions to women engaging in outdoor recreation. The program grew out of a conference, “Breaking Down the Barriers to Participation of Women in Hunting and Angling,” held in 1990 at the University of Wisconsin-Stevens Point College of Natural Resources.

There agency and conservation club leaders generated a list of 21 obstacles to women participating in fishing and hunt-

ing. Fourteen of the barriers related to the fact that women have less of an opportunity to learn about the skills and traditions of fishing and hunting as children and are isolated, knowing few, if any, other outdoorswomen, if they do participate.

The organizers of the Wisconsin conference had received phone calls from women who wondered if they were going to teach hunting and fishing skills there. Dr. Christine Thomas, associate professor of resource management at the University of Wisconsin-Stevens Point, said that although they weren’t offering outdoor sports classes at the conference, “I began



Program organizers and participants recognized the value of passing on fishing skills woman to woman.

Angling for More Women Anglers



Instructor Walt Young offers fly tying tips. Some 22 different outdoor recreation subjects were offered.

to wonder if these calls meant that there is a need for a workshop of that type." Many of the barriers identified had to do with a lack of educational opportunities, so a plan was born to put together a skills workshop.

The first Becoming an Outdoors-Woman program, held in Wisconsin in 1991, was filled to capacity, with over 100 women attending. Since then, more than 40 other states and four Canadian provinces have followed by presenting their own Becoming an Outdoors-Woman programs. Last fall, Pennsylvania joined the ranks of states offering the workshop and, like the others, the "just do it" spirit resonated through the weekend.

PA's program

Pennsylvania's program was organized by the Pennsylvania Game Commission and the Pennsylvania Fish and Boat Commission. It was held in mid-September at McKeesport YMCA's Camp Soles in

Somerset County. Fifty-nine women from around the state and several from out of state gathered at the rustic camp in the scenic Laurel Highlands, to "demolish" some of the barriers that had kept them from fishing, hunting, becoming or being better outdoorswomen.

In keeping with the national program outline, a variety of outdoor recreation subjects was offered, 22 in all, from fly fishing to sporting clays to game tracking to camp cooking.

Although there was plenty of time and encouragement to make contact with peers, talking to and forming new friendships with other budding outdoorswomen, the obstruction to outdoor sports participation which the Pennsylvania Becoming an Outdoors-Woman program did the most to tear down was lack of knowledge. This is a condition not restricted to whether one is a man or a woman—ignorance carries no stigma, it only means that you have not yet learned something.

Participants could come into the program with virtually no experience in a sport, only an interest, and feel very much at ease, because the program provided a pleasant forum for learning, in company with like-

minded people. An often-heard compliment of the Becoming an Outdoors-Woman programs is that the learning is in an atmosphere that is not "intimidating," and that the experiences are set in a "controlled environment." In addition, the women liked the fact that all of the participants and many of the instructors were also women. It was particularly satisfying to have skills passed on woman to woman.

The women who attended the Pennsylvania Becoming an Outdoors-Woman weekend went home with new abilities and skills, able and confident they could be anglers, canoeists, fly tiers, campers, hunters and more. They had gained knowledge that empowered them to go out and take part in the sport, or to feel free to seek advanced instruction, now that they had a solid base of hands-on training and information.

The Pennsylvania Becoming an Outdoors-Woman program was very similar to the structure that is presented nationwide. The women arrived for lunch on Friday, had a four-hour skills course in the afternoon, dinner, then a wild-foods, fish and game, social time in the evening. On Saturday, a four-hour class began after breakfast, then another after lunch. Saturday evening featured an after-dinner "fashion show" of outdoor sports clothing and equipment for women. Another class filled Sunday morning, and the participants were done by noon. The cost was \$175 for meals, lodging and workshop sessions. Because the weekend format allowed each woman to take only four subjects, and there were many more to try, quite a few said they would like to come back if the program was held again.

Water sports

The water sports portion of the program was coordinated by the Pennsylvania Fish and Boat Commission. Classes offered were Basic Fishing Skills, Beginning Fly Fishing, Advanced Fly Fishing, Fly-tying and Basic Canoeing. These offerings were among the best-attended of the courses, with two-thirds of the attendees passing through at least one. Some of the women had come with a definite purpose, taking all three of the fly angling-related courses, building on the skills they gained throughout the weekend. Some classes were held twice to accommodate the interest.

It's perhaps not right to call what the Becoming an Outdoors-Woman program offers "classes." The sessions are more like actually participating in the activities, with someone kindly and knowledgeable to guide you toward doing it correctly, or better. Instruction was "hands on" and in the field, or on the water, as much as possible, even with the weekend's unseasonably cool and windy weather.

Instructors came from the ranks of the Game Commission and Fish and Boat Commission, plus outside individuals, both men and women. I was privileged to be an instructor for Basic and Advanced Fly Fishing, along with my husband, Bob, and Walt Young, who also taught fly-tying. We are all outdoor writers and avid fly anglers. Carolyn Shafer, a local accomplished fly angler, completed the instructor team. The Commission's involvement was overseen by Carl Richardson, Aquatic Resources Education Manager.

In the Basic Fly Fishing session, we began by explaining why a "different" sort of rod, reel and line were used for fly fishing. Some attendees had never fished, but we assured them they would leave the class "self-sufficient on the stream." In the next four hours they learned to cast a fly rod proficiently and to tie basic knots and make their own leaders. They also learned about equipment (we instructors had a "fashion show" of our own, modeling how we dress and what gear we take to the stream), and they were introduced to the aquatic insects and other water life that flies imitate.

Camp Soles has a lake, and we took the class there in hopes of catching fish, maybe bluegills, on flies, but an onshore wind and a weedy edge kept us from getting any. In the Advanced Fly Fishing session, we went to Laurel Hill Creek, several miles away. Just as it happens sometimes when you're going fishing for "real," the stream was high and cloudy and the trout weren't biting.

The group did try their hand at casting to moving water, learning cast placement, drifting flies around obstacles, and on-water line handling. They also got some advanced casting and fishing techniques and a few of our personal fly-fishing tips and "tricks." We finished the day, the sun out at last, with more about choosing flies.

All the participants left the fly fishing courses with a good chance of being successful on the stream. There was satisfaction in the smiles, the handshakes and the hugs of those who until that day had never touched a fly rod. We instructors also presented the attendees with a notebook of articles about the sport, plus Fish and Boat Commission brochures. These were for reference and refreshers after the course, and as information and tips on "where to go from here" in learning more about fly fishing, places to fish, and choosing equipment.

Not every woman who came to learn about fishing wanted fly angling. Some came just wanting to know a little about basic "hook and worm" fishing. For them, a Basic Fishing Skills course was taught by Carl Richardson and Fish and Boat Commission Waterways Conservation Officer Dawn Swenningsen. There gals were introduced to simple rigging up, knot tying and using bait, and they spent some time at the lake edge. Several caught their first fish.

Heidi Millbrand, a Fish and Boat Commission Aquatic Resources Program Specialist and an avid canoeist and canoeing instructor, taught the Basic Canoeing class. After some onshore instruction, participants spent almost the whole four hours out on the lake practicing their new skills.

At the beginning of most of the sessions, attendees were asked how they came to be there and what they hoped to get from the course. This helped instructors recognize where they needed to focus instruction and

served as a "get acquainted" time. The picture that emerged was that there was no "typical" Becoming an Outdoors-Woman participant. Age groups from teenagers to "golden-agers" were represented. Wanting to be active in the outdoor sports was obviously not confined to just one period in a person's life.

In our fly fishing class, many of the women said they wanted to learn so they could accompany friends or loved ones who were already participants. But there were also women who were there because they wanted to become fly anglers for themselves, to please themselves and to do by themselves, not necessarily as part of a couple or crowd. Carl Richardson said that in the Basic Fishing class a lot of the women had spouses who fish, who encouraged them to attend the program so they could fish together. There were also mothers, he said, who wanted to learn so they could take their children fishing.

If the participants in the Becoming an Outdoors-Woman program had one common trait, it was the enthusiasm that shone from all faces. In our fly fishing morning class, we instructors offered the group a break halfway through the four hours. Oh no, the women insisted, let's keep going, and they pulled their chairs up and leaned forward. Time, to them, was short and precious, and we instructors had something to give, knowledge, which they wanted and deserved, and which they meant to take away with them.



1997 PA Becoming an Outdoors-Woman Weekend

The 1997 Pennsylvania Becoming an Outdoors-Woman weekend is set for September 12, 13 and 14, Friday to Sunday, again at Camp Soles in Somerset County.

Watch for it to be advertised to *Pennsylvania Angler & Boater*, or contact the Pennsylvania Game Commission at 717-787-6286 for details.





Harvey's Creek,
Luzerne County

Pennsylvania's Overlooked TROUT STREAMS

by Charles R. Meck

Fish any one of Pennsylvania's better-known streams during a hatch and you'll see just how popular a destination they are. Hit Penns Creek near the end of May when it hosts the green drake hatch and you'll find hundreds of other fly fishers lined up waiting for these huge mayflies. Fish that same hatch on the Little Juniata River, or Yellow Creek near Bedford, and you'll also have to contend with heavy fishing pressure. Look at Yellow Breeches Creek at

Boiling Springs as another example of crowded streams. When the white fly appears on this water the latter half of August, you'll find elbow-to-elbow fly fishing in the catch-and-release area near Allenberry. I avoid at all cost fly fishing on Spring Creek the first few days of the sulphur hatch in mid-May. You'll have to search the stream for any room to match the hatch.

What can an angler do to avoid these

crowds? Fish some of the lesser known streams of the state—the overlooked trout streams of Pennsylvania. These streams include the Tioga River, the Genesee River, Harveys Creek, Logan Branch in Bellefonte, the Little Bald Eagle Creek just a few miles outside of Tyrone, and Bobs Creek in northern Bedford County.

While hordes of fly fishers flock to Yellow Creek, you'll find Bobs Creeks relatively free of the angling crowds. And Bobs also holds great hatches at this time of year. So even though many of the state's fly fishers search for a place on some of the more popular streams, other streams in the Commonwealth that provide good fly hatches and fly fishing go relatively unfished after the opening week of the season.

Hatches

If I had only one week of the year to match hatches, I'd select May 23 to May 30. On most of these overlooked trout streams you can find hatches then. In that week you can see sulphurs, light cahills, green drakes, slate drakes, blue-winged olives, dark-green drakes, brown drakes, March browns, blue quills, and others.

Even in midsummer I've seen hatches and rising trout on some of our secondary streams. I've hit trico hatches on Manatawny Creek near Pottstown and on

Martins Creek near Bangor, Northampton County.

But what's the use of seeing a hatch if the water temperature doesn't hold up during the summer? You'll find cool temperatures on many of these overlooked streams in the state. On Roaring Branch and Rock Run, both just north of Williamsport, I found 59-degree temperatures on late July afternoons. On Schrader Creek I recorded water temperatures in the low 60s in late July. So many of the overlooked streams hold some hatches, cool water—and yes, plenty of trout.

Logan Branch

Just a couple of miles from the angling crowds on Spring Creek you'll find a stream that few fishers frequent. Logan Branch doesn't hold the aesthetics of many of our more remote streams. You'll find houses and factories built next to the stream. A busy highway runs just a few feet from this limestoneer. Don't let these shortcomings deter you—this stream is loaded with plenty of streambred brown trout, many up to 15 inches long.

As Spring Creek, Logan holds a sulphur hatch. You won't find it as heavy as the one on Spring Creek, but it does bring the heavy streambred trout to the surface. Logan Branch also holds some little blue-winged olives and some large Hex mayflies in August and September.

Logan Branch empties into Spring Creek in Bellefonte. Travel upstream from the town a mile or two until you find some open water. PA 144 parallels the stream for several miles.

Manatawny Creek

Manatawny Creek is a mid-sized trout stream located just a few miles northwest of Philadelphia. It holds some great caddis fly and mayfly hatches throughout the season. Even in late September you'll find holdover trout. Even though the throngs fish the Tulpehocken, Valley, and French creeks nearby, you'll find fewer fly fishers on Manatawny Creek. While hundreds of anglers fish little blue-winged olive hatches on the Little Lehigh, few know of the good matching-the-hatch opportunities on Manatawny Creek.

You can reach Manatawny Creek just off PA 662 near Boyertown. The stream enters the Schuylkill River at Pottstown.

Martins Creek

You often find angling pressure on the Little Bushkill Creek in Easton, the Little Lehigh in Allentown, and the Monocacy

in Bethlehem, but you probably won't find as many anglers on Martins Creek just a few mile north of Easton. Still, Martins holds some respectable hatches. Hit Martins Creek near the end of May and you'll see sulphurs and trout rising to them. Fish the same stream in late August and you'll find tricos in the air every morning. Martins Creek also holds a hatch of the big *Hexagenia* mayflies common on the Little Lehigh in mid-August. These big mayflies continue to appear at dusk for more than a week.

Martins holds some heavy trout, too. Some of the stream has been posted, so look for open water and get permission from landowners.

Martins Creek begins above Bangor. Some anglers think the stretch in that town gets little pressure and holds quite a few trout. PA 191 gets you to this upper end.



Check out lesser known streams this season. You'll probably find a few that lack only crowds of anglers.

Little Bald Eagle Creek

Even though dozens of anglers vie for elbow room on the Little Juniata River, one of its tributaries, the freestoner Little Bald Eagle Creek, gets little fly fishing attention. Unlike its sister stream to the East, Bald Eagle Creek, the Little Bald Eagle flows cool all summer long. It holds a good supply of streambred and some native brookies, in addition to holdover trout. I've already fly fished on this stream in July and August when air temperatures rose above 90 degrees and I've caught trout. At that time you might find some of the stretches with water temperatures in the high 60s.

The Little Bald Eagle has two excellent tributaries, Vanscoyoc and Big Fill runs, which help the main stem maintain cool temperatures all summer long. Both branches boast good wild trout populations of their own.

Talk about some hatches, the Little Bald Eagle holds its share. I've fished over green drakes, yellow drakes, blue quills, slate drakes and quill gordons. I've seen the heaviest hatch of sulphurs (*Ephemerella dorothea*) that I've ever seen on any stream—and the hatch appears every night for more than six weeks. These small sulphurs (size 18) usually appear just at dusk in June and July. I said earlier that the stream hosts two drakes, the green and the yellow. On some rare occasions I've seen both emerge on the same evening in early and mid-June.

The Little Bald Eagle flows into the Little Juniata River in the town of Tyrone, Blair

County. You'll find the best fly fishing a few miles north of town. I-99 parallels the stream.

Clarion River

Why have so many anglers overlooked the Clarion River around Ridgway? It's a spectacular river with plenty of access, but it has some problems. I'm convinced the off-color water inhibits trout from feeding on the surface. The Clarion has the potential to be one of the top streams in the East, if thermal problems and pollution lessen.

On the Clarion from Johnsonburg

Pennsylvania's Overlooked TROUT STREAMS

downriver to Portland Mills, you'll find plenty of open water and some good rapids. In more than a dozen times when I have fly fished this river, I have caught trout only in the rapids and riffles of this river. That suggests to me that the trout need highly oxygenated water to survive. On those trips to the Clarion I have caught more than 50 trout, and all of them in the faster water of the river.

Does the river hold any large trout? On that Labor Day trip I landed a heavy 21-inch holdover brown trout. You can reach the river from Johnsonburg to Ridgway off US 219 and from Ridgway to Portland Mills on PA 949. If conditions on this river improve in the next few years, watch for some great trout fishing.

Harveys Creek

Talk about a stream getting no respect—Harveys Creek, Luzerne County, is at the top of the list. The lower end of this 30-foot-wide freestone stream flows next to PA 29. On many summer days you'll find people having parties and washing their cars along the stream. In the five times I've visited this stream in the past two years I have never encountered another fly fisher.

Does that mean this stream doesn't hold any hatches or trout? In the middle of a hot August afternoon I've caught trout there—plenty of trout, including streambred browns and natives brook trout. Harveys Creek stays relatively cool throughout the summer and holds some deep pools, spectacular falls, and plenty of heavy trout.

Harveys Creek holds its share of good hatches. In May you'll see a great sulphur hatch and by the end of the month you'll even see some green drakes on the surface. Harveys also holds light cahills, slate drakes and little blue-winged olives into September.

Bobs Creek

Dick Cheney, former Secretary of Defense, accompanied several of us to Bobs Creek on the third day of the season several years ago. That's not an appropriate time to take someone to Bobs Creek in northern Bedford County. This freestoner gets a lot of pressure early in the season. Even though we had difficulty finding some room to fly fish, we hit a spectacular blue



Little Fishing Creek, Centre County

quill hatch in the afternoon and some rising trout. In one pool, Cheney caught more than 10 trout matching that hatch with a size 18 Blue Quill. Several of us now refer to that one pool as the Cheney Pool.

If you visit Bobs Creek several weeks into the season, you'll encounter fewer anglers and still plenty of hatches. Before the end of April you'll see great hatches of blue quills and quill gordons.

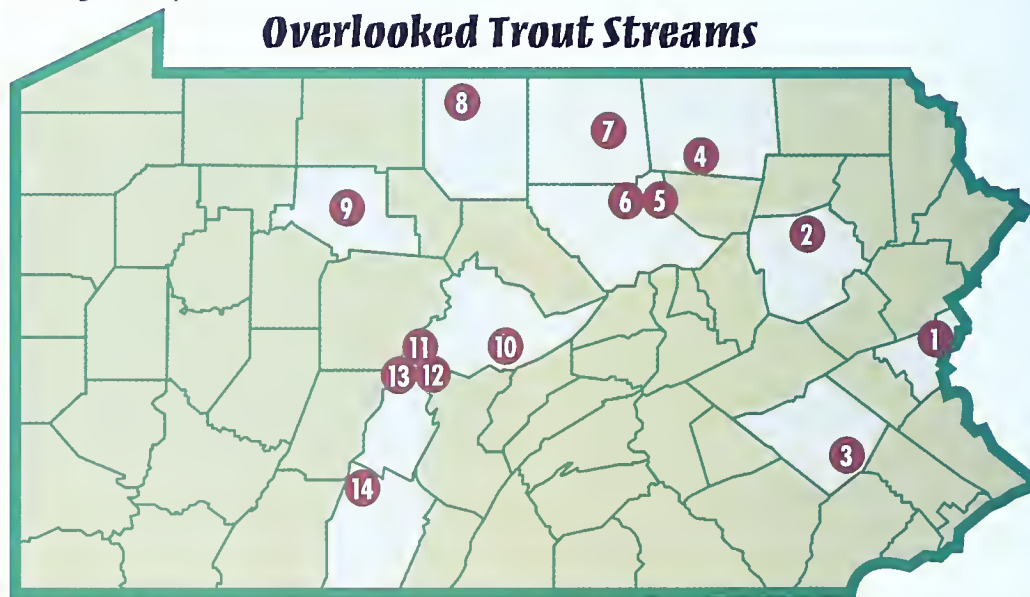
Bobs Creek has even fewer fly fishers by late May when the green drake appears. Fish some of the upper stream above Pavia in late afternoon and you'll probably see some of these large mayflies emerging during the day.

Bobs Creek has plenty of native brook trout and streambred browns. PA 869 gets you to the lower end of the stream. But much of the better fly fishing is upstream. There's a road that follows the stream above Pavia. In some areas you'll have to hike in and fish. In this upper area you'll find plenty of productive runs and pools and the stream in this section ranges from 15 to 20 feet wide.

Remember—keep looking at some of the other streams across the Commonwealth. Compared to the more popular streams, many lesser-known waterways lack only angling pressure.



Overlooked Trout Streams



1. Martins Creek near Bangor, Northampton County.
2. Harveys Creek, northern Luzerne County.
3. Manatawny Creek, southeast Berks County.
4. Schrader Creek, southern Bradford County.
5. Rock Run, north of Williamsport, Lycoming County.
6. Roaring Branch, north of Williamsport, Lycoming County.
7. Tioga River, eastern Tioga County.
8. Genesee River, northern Potter County.
9. Clarion River, Elk County.
10. Logan Branch at Bellefonte, Centre County.
11. Big Fill Run, Blair and Centre counties.
12. Little Bald Eagle Creek, northern Blair County.
13. Vanscoyoc Run, Blair and Centre counties.
14. Bobs Creek, northern Bedford County.

Pennsylvania's Boat Titling Frequently Asked Questions

When will boat titling go into effect?

Act 1996-73, providing for the titling of certain motorboats in Pennsylvania, was signed into law by Governor Ridge on July 2, 1996. The Fish and Boat Commission will begin the boat titling program January 1, 1998. In the meantime, the Commission is developing regulations to implement the titling law, upgrading its computer programs, developing new application forms and creating a title document.

Will I have to get a title for my boat?

Under the law, boat titling will affect motorboats with a model year of 1997 and newer, except those that are powered by an outboard motor and are less than 14 feet. All inboard-powered boats, including all 1997 or newer personal watercraft, are subject to the titling requirement, regardless of length.

Can I get a title if my boat doesn't meet the titling requirements?

Yes. The Fish and Boat Commission will issue a title to boat owners who volunteer to title their boats. However, once a title is issued by the Commission, that boat must remain titled by future owners.



How much will it cost to get a title?

The charge is \$15 for unencumbered boats and \$20 for boats with encumbrances (\$15 for issuance of the title and \$5 for recording the lien). A duplicate title is \$5.

What are the benefits of titling?

Boat buyers are assured that the seller has clear ownership of a boat offered for sale. A certificate of title is a legal document exhibiting ownership. Some lenders won't finance a boat without a title, so securing a loan to purchase a boat should become easier in Pennsylvania.

Titling is also a deterrent to boat theft. Boat dealers and other purchasers are more certain that someone offering a boat for sale has the legal right to do so.

by Andrew Mutch

Where can I obtain a title to my boat?

An application for a boat title is included on the same form as a boat registration. Applications are available at county treasurer's offices, certain boat dealerships, at Commission headquarters in Harrisburg and regional law enforcement offices, and by mail directly from the Commission.

What if I bring my boat in from another title state?

Any boat currently titled in another state must obtain a Pennsylvania title, when Pennsylvania becomes the state of primary use, regardless of the age, size or length of the boat.

What are the differences between boat registration and boat titling?

A certificate of title is a legal document exhibiting ownership. A certificate of registration denotes a right of use, but does not prove ownership. Frequent cases of ownership disputes arise in states where only registration is required. Co-ownership by in-

dividuals often leads to disputes when the relationship ends or is no longer friendly. The loser in this situation is often an unsuspecting buyer who has paid cash for a boat to one of the partners and is unaware of the co-owner's interest. A certificate of title indicates ownership, requires all owners to sign off on their interests when selling, and would provide the purchaser with proper documentation for titling and registering a boat.

Who can I call or write to for more information?

PA Fish & Boat Commission, Boat Registration Section,
P.O. Box 68900,
Harrisburg, PA 17106-8900; phone (717) 657-4551.



Andrew Mutch is Chief of the Commission's Boat Registration Section.

Fine-Tuning Your **SHAD FISHING**

by Vic Attardo



In recent years, one key to successful shad fishing has been to adjust to the variable water flows.

I've come to believe that the weather around shad season has been cursed. After enjoying some mild and relatively stable springs in the mid- and late 1980s, conditions during recent shad migrations have been downright hostile. High water, low water, cold water, muddy water and the effects of last year's ice floods are just some of the things shad fishermen have faced in this daffy decade.

Shad, on the other hand, don't appear to have been adversely affected by the variable weather, though the numbers taken by commercial netters in the Delaware Bay is causing concern. By most accounts, '96 was a good year as sonar units were continually bleeping the presence of running fish.

Instinctively, shad know how to adjust to the mutable spring weather. When the water is high, they move closer to shore, making the shoreline channels excellent targets for waders and boat anglers who know the dropoffs close to the banks. When the water is low, shad ride the mid-river channels where the flow is steady and there are plenty of rocks to break the current. Shore anglers able to cast the extra distance, or boat anglers who know the twists and turns of the mid-river cuts, find the fish.

Go with the flow

In recent seasons, the key to catching shad has been to adjust to the variable water flows. The National Weather Service records the river levels on at least six stations on the Delaware River from Callicoon to Trenton and you can get this information by calling 1-800-431-4721.

For my own benefit, I listen to the reports for Riegelsville and Phillipsburg. Keeping a computer chart I record the water level every day from April 1 to June 1, and every third or fourth day thereafter, depending on rainfall. Through the use of this information, I've learned the parameters at which I can safely wade a number of favorite shoreline spots in the Easton and Shawnee areas and when I must revert to boat fishing because of a higher flow.

When the water level at Riegelsville is between 4 and 5.5 feet I know from experience I can reach the mid-river channel with a dart. When the river at Riegelsville is listed above 6 feet, I need the boat and must fish close to islands or the shoreline channels that run against the state-line boundaries.

For the upper Delaware when the water level at Port Jervis is between 3 feet and 4 feet, I can wade selected areas from

Narrowsburg, New York to the Delaware Water Gap. Above that and I prefer to sit comfortably at anchor.

In 1996, the water level at Riegelsville through the third and fourth week of April was 7 to 9 feet, too high to wade anywhere in the area but making for excellent boat fishing along shoreline dropoffs. At one location, my partner and I anchored within 15 feet of the Pennsylvania shore and caught our fill of shad over a three-day stretch. Boatmen who kept to the mid-river channel, where they had taken fish in previous years, had a tough time of it. Because of the ice floods and the restructuring of the river bottom, some of them never found the old lanes they remembered.

The high water conditions forced us to make a number of adjustments in our daily routine. And if there is one thing that can be said about shad fishing, it's that you always have to be making adjustments.

Buy good real estate

River guide Ken Koury believes that making adjustments on the water is the key to successful shad fishing. Perhaps the most important adjustment, he notes, is location.

"As long as I am getting a bite every half-hour or so, I don't make a major move. I may slide the boat a few feet in either direction to get into a better groove, but that's it," Koury says. "But if the fishing goes dead for an hour and I've tried some other tricks, then I'm going to get up and look for another spot."

As part of his adjustable plan, Koury makes changes in his location based on the time of day. At first light you'll find him over traditional channel runs, but as the sun climbs he moves to other places.

"At midday, I start looking for deep water where the shad will be laying up for a time, taking a little siesta. If that doesn't work, I'll do the exact opposite. I'll set up in the channels and hope a few of them will be running through. The important thing is to think like a fish and do what you're experience and understanding tells you the fish will do."

Clearly, finding the right location is the number one component to good shad fishing. But even a good location can require minor adjustments as the river goes through its daily moods.

The point was driven home to me last season while plying the waters around Easton. Early in the morning we banged away at the shad, but as the day wore on we garnered fewer and fewer fish. From first light to dusk we marked fish on the



sonar unit, but until we made some minor adjustments in our presentation we would have thought the river to be suddenly fishless.

My partner, Ernie Dalrossa, and I were anchored in our 16-foot tri-hull on the edge of a swift channel against the rocky shoreline. High water conditions had persisted for several days, a result of some heavy rains and repeated releases from some of the upriver impoundments—the latter a major source of consternation throughout much of the last season.

Early in the day, the current was pushing hard and the only fishable water was situated within a rod's length of the river bank. Frequently, the swing off the anchor took us so close to shore we could almost step out of the boat onto dry land.

Not surprisingly, the shad were tight to the bank, cruising up river in some 8 to 10 feet of water. Anchored as we were, our flutter spoons intercepted their movement.

But as the day wore on, we began to notice a gradual decrease in current speed brought on by the end of the previous night's reservoir releases. The boat was not swinging as widely and we even noted a change in the sound of our downrigger wires as the metallic hum decreased with the milder flow.

There was also a change in our shadnapping. The hot morning bite was cooling and the spoons on the shore-side of the boat were going completely untouched.

Noticing the change, Ernie theorized the shad were now running farther out from the bank and that we had to adjust our position.

In actual location, we did not stray more than 10 feet across the channel. But in

Finding the right location is a main component to good shad fishing. But even a good location can require minor adjustments as the river goes through its daily moods.

terms of renewed success, it was as if we had moved to a different river. We started banging the shad again and continued some heavy hitting until it was again necessary to make other minor adjustments—in this case, a change of spoon size and splitshot weight to compensate for a further decrease in the current.

The important thing is to look and listen to what the river is doing. When the sound of the waves slapping against your boat seems loud and rapid, the river is telling you something. When the morning's anchor feels less bumpy and the waves feel calmer, the river is again speaking to you. In both cases, there may be minor adjustments you can make that will put fish in the boat.

What's my line

One of the great unsung variables when casting to shad is the fishing line that's used. I'm not referring to brand names and not necessarily the strength of the line under its pound test. The important variable here is the diameter of the line.

Most anglers realize that with so many different grades of monofilament on the market, the diameter of one manufacturer's 10-pound-test line can be thinner than another manufacturer's 6-pound test.

I remember once running out of my favorite line for casting and being forced to buy another brand that was touted as being thinner and more limp. It was, but it was also not right for the job of casting shad darts.

Fine-Tuning Your SHAD FISHING

The thinner the line, the faster it will sink through the water column and this softer, smaller diameter line sank very quickly. It also hung up around every rock in the river. As my dart drifted along, the line came down behind it and I had no sense of what depth my dart was traveling until I snagged on a rock. After a couple of days of this aggravation I made a more earnest search for my favorite line, found it, and resumed my happy fishing.

With so many generic and name-brand monofilaments on the market, it would be impossible to give a complete list of line diameters. But a general rule of thumb for casting to shad with quarter-ounce darts is to use a .010 to .012 diameter line for swift-water fishing. If you look hard enough you'll find the diameter listed on most boxes or on the spool.

Over and over again I've seen anglers using the generic brands or less expensive grades of well-known brands—which typically have a larger diameter—experience fewer rock wrap-arounds than the anglers using the super premium lines that get to the bottom quicker. Save these good lines for deepwater crankbait and worm fishing for bass. And one other note, forget the new super braided lines. Just try to break a snagged dart off with this stuff on your reel!

Concurrently, do not use a heavy line while downrigging with flutter spoons. One day I met a pair of fishermen at the ramp who had gone shadless through the day. I could see they were experienced fishermen. They had anchored in a good location and had their downriggers properly set. As we talked they consoled themselves telling me stories of their salmon trips in New York. It was then I looked at the line on their reels. It was as thick as clothesline. I recalled my partner telling me that most flutterspoons won't work very well behind anything heavier than 8-pound test, and certainly not behind the 25-pound-test line these gents still had on from their salmon trips. I pointed this out and we all tested our spoons in the water. Sure enough, theirs drifted like the lid of a coffee can—no wobble whatsoever; mine looked like a flag flapping in a 50 mph wind.

Every hue?

Fifteen years ago I would have written that one of the most important adjustments you could make in a day's fishing was the color



of the shad darts—flutters weren't in vogue then. Back then, my shad boxes resembled a rainbow, only prettier. I had darts of every hue and color seen on this earth.

Today, I keep only three color combinations of darts and spoons. For darts I have pink/black, chartreuse/green and chartreuse/red. For spoons I carry the same colors but with gold and silver backs.

I choose the color of the dart and flutterspoon by checking the color of the water and noting the appearance of the sky. For dark days or cloudy water I start with the pink/black combination. For clear water and bright days I use the remaining colors, favoring chartreuse/red as the sun climbs above the tree line. In cloudy water, a gold-backed spoon seems to work better, but at times a silver blade with a hammered finish works under sunny conditions.

If you're at a loss as to which color to try, simply tie different lures onto your line, drop them over the side and determine which of them you can see at a greater depth. That's really all it takes. On the water, I'm more interested in proper depth, drift and location than color. The angler-to-angler call of "what color are they taking" only makes me smile.

When shore fishing, I carry more sizes of splitshot than I do dart colors, while in the boat we have a greater variety of blade sizes to match varying current speeds.

Koury is also not a big color man.

"I don't believe in carrying 50 different colors," he said on one outing last year. "I usually carry 12 to 15 colors and if you are using four rods on a boat you can go through these pretty quickly."

Koury's favorite flutterspoon colors are pink and black, chartreuse and green, chartreuse and red, and chartreuse and pink. He uses a mixture of gold and silver blades behind each shade.

"I like to start with one of everything. I never go with all the same color to begin. But when one color starts showing

itself as the dominant color of the day, I switch all my lines until that color stops working."

Up against the wall

Imagine for a moment a rock lying on the road. As you drive along, it's easy to get around the single rock. Swerve a little to the right or a little to the left and your tires miss the bump.

But put a couple of rocks on the road and spread them across the lane in a lazy curve. Now your chances of a clear passage are almost nil.

Some years ago a number of my Easton-area fishing partners noticed how "doubles" often occurred when two anglers fishing close to each other cast together and ran about the same drift. This phenomenon got talked about a lot—at first in jest, then as truth.

It seemed to happen regularly. If a couple of lads peppered an area as a school of fish went through, more than one would hook up. If these same anglers were casting haphazardly and a school went through, only one would shank a shad, then another angler a lot farther upstream might make a connection. Evidence that a school had run by.

This observation, and a technique of simultaneous dart-throwing among a small unit of wading anglers, became known as "The Wall." The theory is excellent, even if the practice is a little wacky. Simply put, The Wall consists of two or more darts arcing close together on a similar drift. No effort is made to cast to the same spot, but casting into the same lane and then having the darts sweep in closely to each other at the end of the cast is the essence of this technique.

In fact, doubles and even triples are more common with "The Wall." Angler confidence is also good because there is a sense that any shad running up the channel is going to smack into something.

On other note, The Wall is used only during the shad's early sprint up river. Once spawning begins, the fish's behavior differs and The Wall holds little value.

Tighten a screw, turn back the clock, add a pinch of salt or lower the flame—it's the little adjustments that make things work. This shad season consider tinkering with the variables in your presentation and location. Don't just set the anchor in one place and expect to catch shad all day; don't use the same color dart or spoon from morning to night; study the current and add or subtract weight from your line. Watch how the river is behaving and change your behavior along with it.



PLAY



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SPRING 1997



How do they do that? How do fish

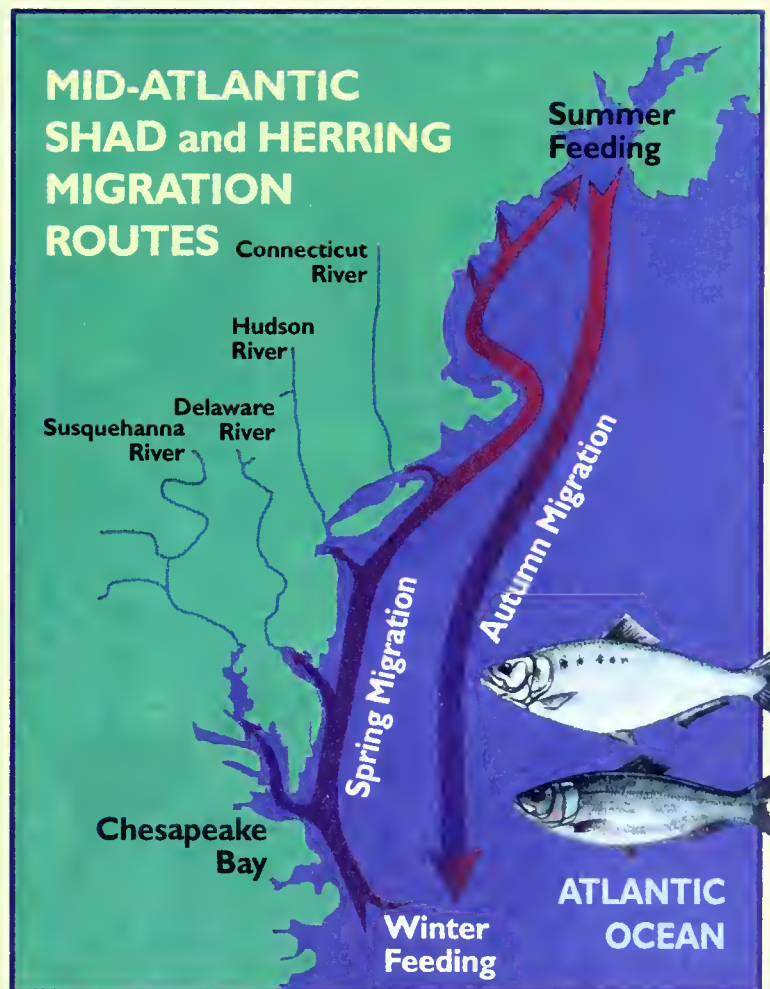
FIND THEIR WAY HOME

Fish that are born in Pennsylvania waters and migrate to the Atlantic Ocean are called anadromous (eh-nad'-ri-mus). Their parents lay eggs in fresh water, the young hatch and live in fresh water, move to salt water, and return later as adults. The two anadromous fish that anglers and biologists talk about most are striped bass and American shad. These two fish make their way up the Delaware and Susquehanna rivers each spring. They return to the spot where they hatched from eggs three to five years ago. How do they know where to go?

American shad adults live in the Atlantic Ocean. They travel in large schools, as you do on a school bus. The fish in these schools are from many different rivers. In the spring, the school travels north. On this trip they pass the different rivers where shad were born. The fish born in that river break from the group and move into fresh water. That's like your getting off the school bus at your stop. Only the adults that are three to five years old break from the group. The younger adults stay with the school. That is just like your riding the bus but not getting off at your stop until junior high school!

How do these fish "know" when they have reached their river?

Scientists have been asking that question for many years. They



think that each river has a special "smell." Fish, especially the ones that migrate, have a good sense of smell. The scientists think the fish can smell their river from out in the ocean and find their way home. Striped bass and American shad are good at finding their homes. Studies show that very few stray.

Pennsylvania Fish & Boat Commission





TACKLEBOX

Do you have a question on reptiles or amphibians? Is there anything you'd like to know about fishing or boating in Pennsylvania? Do you have a question about the Pennsylvania Fish & Boat Commission? Write your question neatly and send it to: **PLAY Tacklebox**, PA Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.

DEAR PLAY:

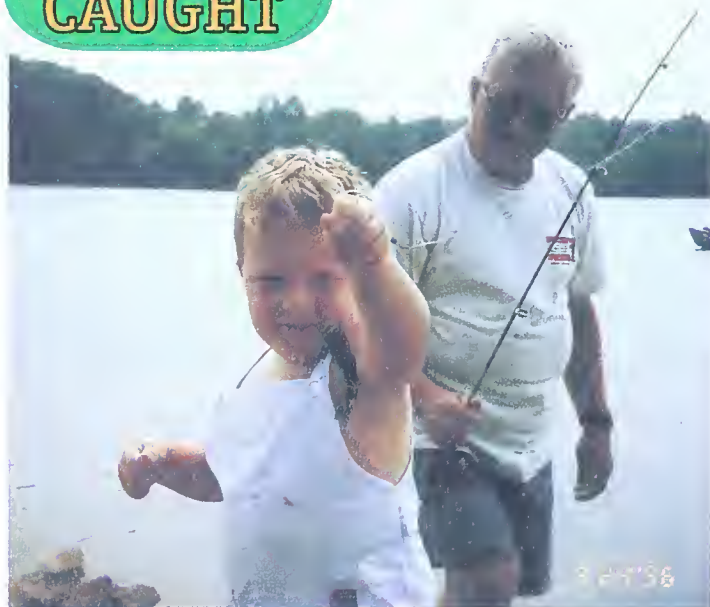
What is the best thing to use to catch a bass in a pond and a lake? What's the biggest bass in the world so far? What's the biggest one you got in bass?

—Sincerely
Terry Lee Gollmer
Albion, PA

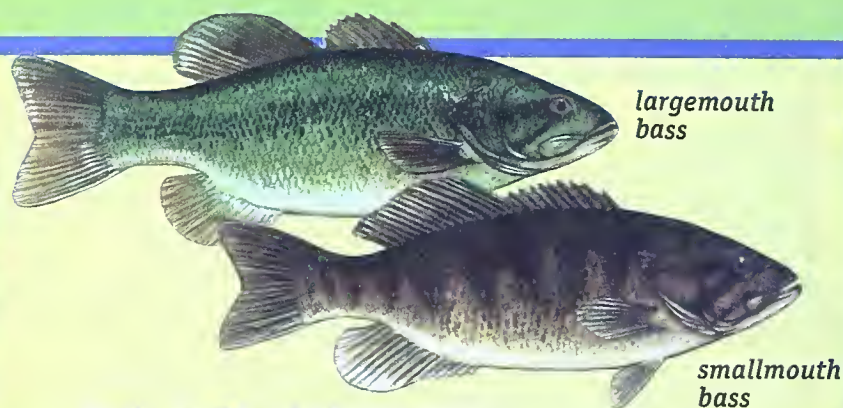


KIDS!
CAST and CAUGHT

Cody Cosgrove
York, PA
2 years old



This is Cody's first fishing trip with PaPaw (his grandpa) and his first fish. This was experienced at Pinchot State Park last summer.



DEAR TERRY,

You must like fishing for bass! The answer to your question about the best bait to use to catch bass is tricky. Most anglers think fish eat our lures and bait because they look like their food. So what you put on the end of your line better look like the food they eat! Largemouth bass eat things like frogs, minnows, sunfish, crayfish and even mice! Smallmouth bass eat crayfish and minnows. If you are after big bass, nothing beats a fat, juicy minnow. You might not catch lots of bass, but I bet the ones you do catch are big. If you are after lots of fish, try a spinner or a jig. The current state record for largemouth bass is 11 pounds, 3 ounces. The state record smallmouth came from your neck of the woods, Lake Erie, and weighed 7 pounds, 10 ounces. The world record largemouth is 22 pounds, 4 ounces. The current smallmouth bass world record is 11 pounds, 12 ounces.

Thanks for your letter and good fishing!

NOTE: If you catch a big fish, you may qualify for a Commission Junior Anglers Award. If you'd like information on the Angler Recognition Program, send requests with a self-addressed, stamped envelope to: Angler Recognition Program, PA Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000

DEAR PLAY:

I want to learn how to tie some new fishing knots. I have a few books that show new knots. What's the best way to learn?

—Sincerely
Justin Smith
Bryn Mawr, PA

DEAR JUSTIN,

The best way to learn to tie new knots is to practice tying the knot first using clothesline. When you feel comfortable tying the new knot with clothesline, use heavy monofilament line. When you can tie the knot well in heavy monofilament, practice tying the knot with your usual fishing line. And keep practicing! **Good luck this season!**

The Great White Fleet

Hopefully you will catch a few trout this spring. Have you ever thought about how those fish got there? On some streams, mother nature does a great job of growing trout. Some waters, though, don't have wild fish. To provide fishing there, the Fish and Boat Commission stocks adult, catchable-size trout. Some five million of these fish find their way to these waters. As you can guess, it's a very big job to get those fish from our 10 trout hatcheries to the waters of the state.

The Commission has 45 big trucks to do that job. These stocking trucks are like streams on wheels. Trout need to be kept healthy on their trip, and what a trip it is! Last year Commission stocking trucks made 1,900 trips and traveled more than 360,000 miles. That is one-and-a-half times more than the distance from the earth to the moon!

What do you need to keep 3,500, 10-inch trout healthy on a stocking run? First, you need a large waterproof container. Most of the trucks have fiberglass tanks on them. Some boats and race cars are made of fiberglass. It's strong, lightweight and waterproof. These tanks have six or seven compartments in them. Each compartment is about the size of two bathtubs, stacked on top of each other. The fish are loaded into each compartment. Each compartment has a lid and some have large holes. Big hoses are

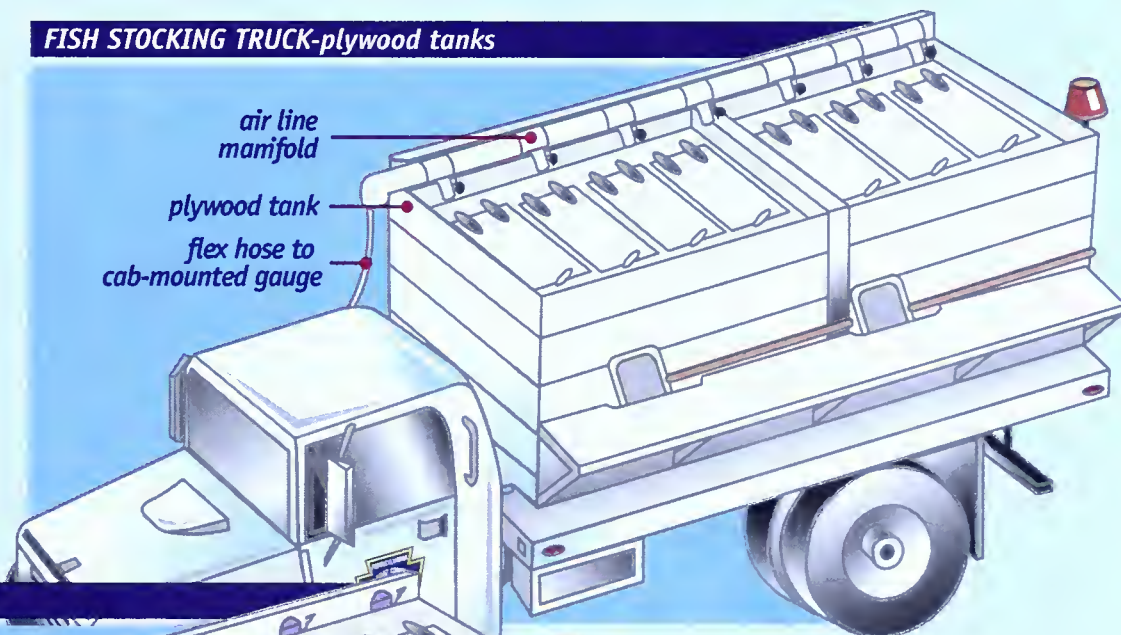
hooked to these holes and the trout go through the hose into the water!

Trout like water that is cold with lots of oxygen in it. They die if they don't get enough oxygen or if they get too hot. The trucks are loaded with cool spring water from the hatchery. To keep the water cool, we paint the tanks white. White paint reflects the sun's heat. The nickname "Great White Fleet" comes from the big white tanks.

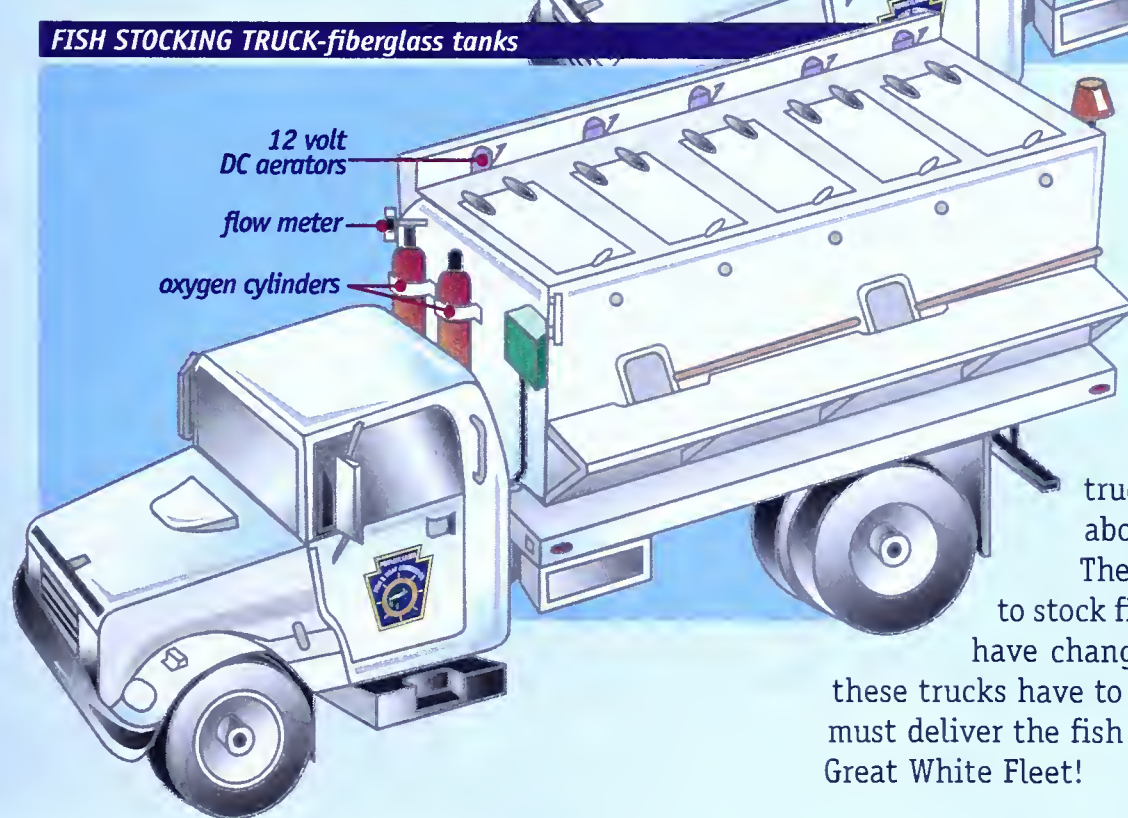
Sometimes oxygen gas goes into the water. This oxygen comes from a big tank, just like the ones doctors use in the hospital. We mount the tanks on the back of the truck. Other times an aeration pump bubbles air into the tanks. The oxygen from the air dissolves in the water.

The stocking truck drivers have a big job. They need to get each load to its destination, but the load of fish must be healthy. They check the fish once every hour. The oxygen in the water is checked

FISH STOCKING TRUCK-plywood tanks



FISH STOCKING TRUCK-fiberglass tanks



then. If the fish need more, they change how much oxygen or air goes to the fish. They need to be safe drivers, too! Each loaded truck weighs more than 23,000 pounds—that's 11 tons. They also need to take care of each truck. Each truck, completely outfitted, costs about \$50,000.

The Commission has used trucks to stock fish since the 1930s. The trucks have changed a lot since then. The job these trucks have to do hasn't changed much. We must deliver the fish healthy. That is a job for the Great White Fleet!

Stocking MAZE

FROM HATCHERY



*You are the driver of a trout stocking truck.
Your job is to get from the hatchery to the
stream. Be sure you do your job safely!*



TO STREAM



Where in Pennsylvania is Carmen Fishiego?

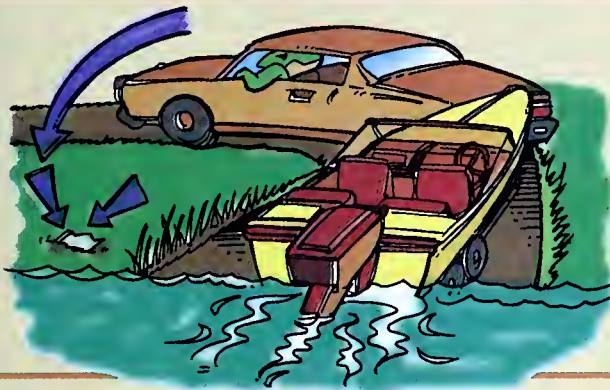
The Case of the Picked Lock

Late last night, we received a call from the Lock Master at Lock Number Three on the Allegheny River. It seems that the lock was picked and is now missing. Locks help boats and barges move up and down rivers,

like the Allegheny. Now that the lock is missing, traffic is backed up on the Allegheny. Carmen and her cronies are at it again!

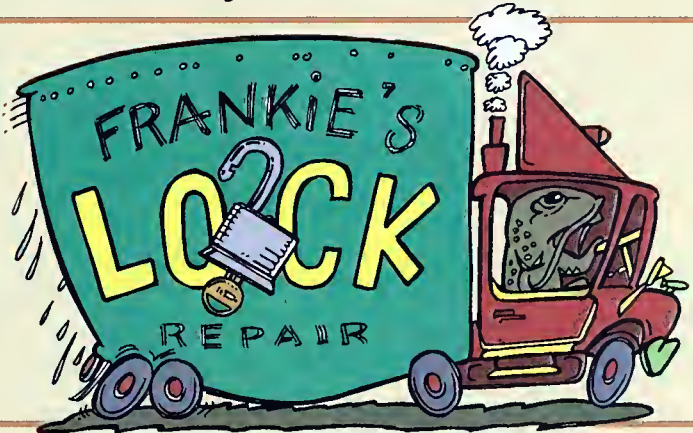
Which waterway will Carmen take the lock to?

Here are your clues:



Allegheny County's Waterways Conservation Officer reports that the boat access at Springdale was where Carmen launched her boat. He found a piece of litter with the words: "meet me for ice cream on the pike stop at the side of the hill" scribbled on it.

Our friends from the Turnpike Commission called in these late-breaking details. Toll takers at Turnpike Exit 5 report seeing a suspicious truck traveling west on the Turnpike. Frank "Flathead" Catfish drove the truck and was carrying a heavy load.

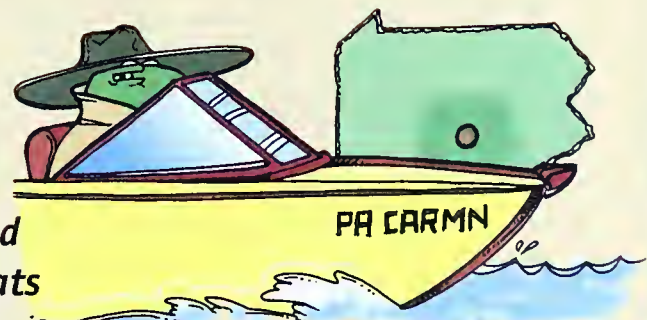


Toll takers at the Fort Littleton Exit noticed some shady, scaly, bad guys hanging out. The workers called the State Police. The Troopers questioned the characters about the missing lock. They said nothing, but one of them had some directions on a piece of paper. Scribbled on that paper was "North on 655, West on 994 to Ray's place."

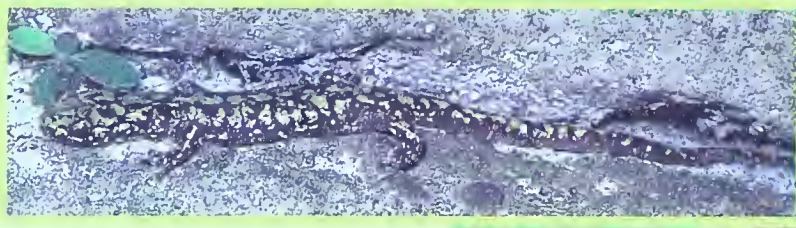
Our radios picked up this coded message: "We will be meeting at the creek that runs through the trough." What could this mean?

Your job, gumshoe, is to track Carmen down and recover the loot. Only then can barges and boats travel up and down the Allegheny River.

GOOD LUCK!



TED WALKER



helping HERPS

Scientists lump amphibians and reptiles in a group called *herpetiles*. That word comes from an ancient Greek word that means "to creep." Thirty-eight species of amphibians and 38 species of reptiles are found in Pennsylvania. Amphibians are frogs, toads and salamanders. Reptiles that live in Pennsylvania include snakes, lizards and turtles. We call the scientists who study "herps" *herpetologists*. The Fish and Boat Commission has a herpetologist. He works with others in the Fish and Boat Commission to protect our herps.

Protecting Herps—Habitat

Everybody needs habitat. Herps are no different. They have special needs and most need wetlands. If we protect herp habitats, then we can protect herps. We protect habitats by regulating what people do with them. You can't build things like shopping malls, highways, bridges and other large projects without a permit. Biologists look at the permit applications before they build anything to see what will be done. They look at the habitat to figure out what lives there. They know what type of habitat each kind of herp needs. If the project doesn't bother that habitat, the builder gets the permit. Some projects get turned down because they will destroy important herp habitats. Some builders have to change the project to reduce the damage they do. If endangered or threatened species live on the site, the project won't get built.

Protecting Herps—Collection Regulations

Many people like to catch turtles and frogs and keep them as pets. Some even like to keep snakes! If you are older than 16, you need a fishing license to catch and keep herps. Some species, like rattlesnakes, even have seasons. There are also limits



on the number of herps you can have. This is just like a creel limit on fish.

The regulations are even more strict on endangered and threatened species of herps. The law says you can't keep these species at all.

You could go to a pet store and get your herp. Still, collecting our herps to sell them is illegal in Pennsylvania. The herps found in pet stores don't come from the wild. Breeders raise herps, just as a farmer raises cattle.

Protecting Herps—Learning more about them.

Herpetologists learn more about Pennsylvania's herps always. One herpetologist put radio transmitters on rattlesnakes. He did that so he could follow them as they moved around. He learned that if we move snakes away from their home area, they don't survive.

Another herpetologist is trying to find a way to list herps and their habitat. They call that an "atlas" project. This herpetologist is working with volunteers who go out and look for herps. This study will take many years, but the results will be important.

Herpetologists from universities in Pennsylvania work with the Fish and Boat Commission to learn more about herps. The Commission provides the money these herpetologists need for these projects. There is also a committee of herpetologists that helps the Commission develop new rules and regulations. As we learn more about herps, we change how we manage and protect them.

WADING SAFELY

Fishing is fun, no doubt about it. There are many ways to do it.

Many people fish from a boat, others fish from the shoreline, and some wade. Wading can be dangerous, especially if you can't swim. Remember, drowning is the second leading cause of accidental death in the United States.

You can protect yourself by wading safely.

These tips should help you be safe when you wade.

WHEN WADING:

Never fish alone. In an emergency having someone around who can help is always best.

Wear a life jacket. Life jackets float. You don't. Many styles have pockets where you can put your fishing stuff. A life jacket will also help keep you warm.

Use a wading stick or staff. An old ski pole works well. A heavy stick will work, too. Some tackle stores even sell wading staffs.



☒ felt soles

Wear felt soles. Baseball and football players wear cleats or spikes. Anglers wear felt-soled boots. The fibers in the felt grip slimy rocks. This keeps your feet from slipping off rocks. Don't worry if you can't find boots with felt soles in your size. Most tackle shops carry felt soles. You glue them right on the bottom of your hip boots.

Carry a whistle. You can use the whistle to call for help. You can also use the whistle to tell your fishing buddy where you are.

☒ whistle



If you are wading with a staff, cross the current facing upstream. Lean on the staff as if it were a third leg.

Shuffle your feet. When in water over the top of your feet, don't pick up your feet. Lift them up just a little and shuffle along the bottom.

Take one step at a time. It isn't a race, so go slowly. You will spook fewer fish that way, too.

Waders and hip boots will not "pull you down," as many people think. If you fall in, immediately bend your knees to trap air in your waders.

☐ life jacket



☐ wading stick

Stay on your back with your feet downstream and your knees bent. Work your way slowly to shore. Don't panic. Your life jacket will keep you afloat. If you don't know how to swim, you should learn. It's your best protection when you are on or near the water.

Lastly, have some extra dry clothes. A dry sweatshirt and sweatpants sure feel good after you have taken a swim. Besides, if you have clothes to change in to, you can keep fishing!

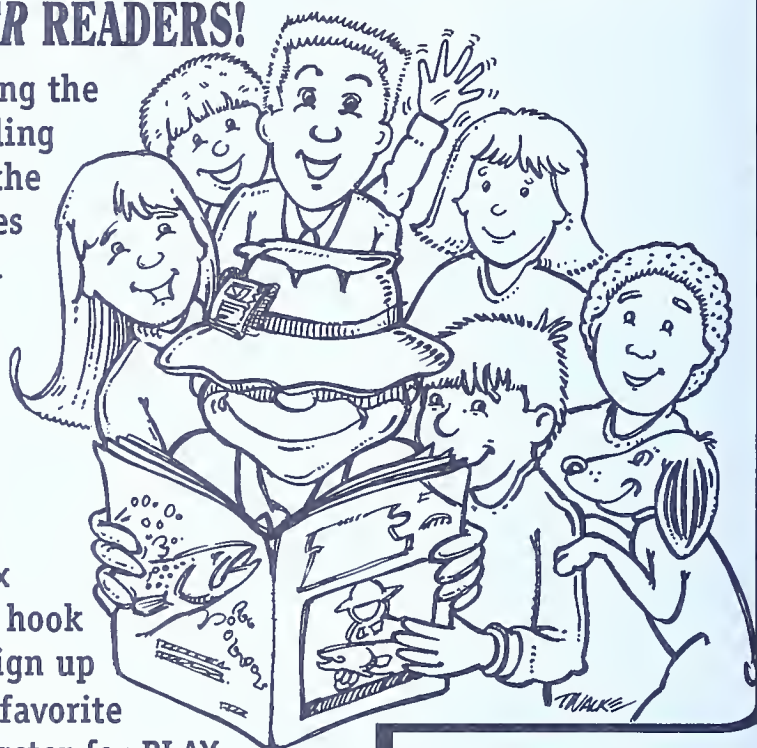
Safe fishing!



Pennsylvania League of Angling Youth
 Pennsylvania Fish & Boat Commission
 P.O. Box 67000
 Harrisburg, PA 17106-7000

HEY, ANGLER & BOATER READERS!

You can look forward to seeing the Pennsylvania League of Angling Youth (PLAY) newsletter in the *PA Angler & Boater* four times each year. But to get the full benefits of membership in PLAY, you need to complete the coupon below. Full membership in PLAY is only \$3.00 per year and members receive the PLAY Newsletter, a collectable patch, tacklebox stickers, a good luck fishing hook and several activity pages. Sign up



your favorite youngster for PLAY or be prepared to share your copy of *PA Angler & Boater*!



LIFE JACKETS
They Float
YOU DON'T!

BAIT THE HOOK

Below are some hooks that have different shapes. Match the hook with the bait anglers put on it.

Hooks

Bait



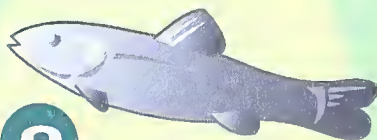
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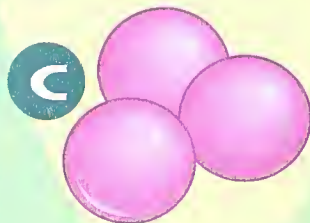
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A



B



C

SUBSCRIBE TO

PLAY

Pennsylvania • League • of • Angling • Youth

The Pennsylvania League of Angling Youth is an educational program designed to reach youngsters. Members receive a colorful sew-on patch, quarterly newsletter, publications, access to the PLAY Correspondence Center and more. *It's a bargain at only \$3.00 a year. Sign up today!*

Name _____ Age _____

Address _____

City _____ State _____ Zip _____

Make checks payable to: Pennsylvania Fish & Boat Commission, Mail to: Pennsylvania Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.

Commission Internships: *An Insider's View* by Jennifer Lamb

As a biology major at Indiana University of Pennsylvania (IUP), I thought that doing an internship would broaden my knowledge in a field that is not an emphasis at IUP. The Pennsylvania Fish and Boat Commission was an ideal place to learn and practice field techniques used in fisheries management. I would also have a chance to observe how data is analyzed to obtain helpful information in managing Pennsylvania's waters.

I contacted the agency at Pleasant Gap and spoke with Mr. Richard Snyder, who was enthusiastic about interns applying with the Fish and Boat Commission. After an interview with Mr. Snyder, it was set that I was going to spend my summer with the Fisheries Management Division at Pleasant Gap.

At the beginning of my internship, Mr. Snyder gave a small presentation about the Commission and the duties of the various Commissioners. I learned how rules and regulations come about from data that is collected during different studies that are done throughout the divisions of the Commission. I also gained experience working with computer programs. Data from creel surveys, population estimates and other studies was entered into these programs.

The stocking trucks were busy my first week at Pleasant Gap, which gave me the perfect opportunity to ride along. On the day I went, the truck was heading to Black Moshannon Creek. It was amazing how many people followed along to help and to see where all the big trout are stocked in the stream. By the end of the run the number of helpers dwindled to about four people.

Pressing scales to determine the age of fish was a major

for smallmouth bass. This was done as part of a population study performed by the Warmwater Unit. In the middle of July, I was a member of a crew that used a backpack to shock for young-of-the-year smallmouths in Bald Eagle Creek. The same process was also used on the Juniata River. Both sites were shocked with a towboat to study the adult population of smallmouths.

Throughout the summer, I was involved in a number of other projects. At the end of June, the Coldwater Unit needed a few extra crew members to conduct a trout population survey of the Little Juniata River. I was chosen to go along and record data. In July, I worked with a crew in Clearfield to shock Moose Creek. Our job was to shock the creek to determine if it was healthy enough to support a trout population. I later accompanied this same crew in July when we used a flat-bottomed boat to perform another survey of the Bald Eagle trout population.

One project that I was quite interested in was the work done to re-introduce shad into the Lehigh River. The first experience dealing with this project was my trip to Easton to observe the shad ladder. The ladder lets the shad travel upstream where spawning takes place. Later in the summer, I assisted staff at the Van Dyke Hatchery in extracting otoliths from fish that were captured in the Lehigh River.

The otoliths are tiny earbones that are used to age the fish. On the final day of my internship, I was sent along with another intern to Benner Spring Hatchery to observe the preparing of the otoliths to be aged. They are ground down flat on each side and mounted on a slide. It is then projected onto a small screen where the annuli can be counted to determine the age.

On finishing my internship, I believe I have gained a vast amount of knowledge in the field of fisheries management. The following is advice for future interns that I found to be helpful.

1. Try to take classes that are geared toward the field of the internship you intend to take.
2. Show enthusiasm and interest in the subject that you are working with. Employers want to see that you are trying to learn as much as possible.
3. Always ask questions. At first, I felt more comfortable asking seasonal workers to explain things, but as the summer went on I became more familiar with other employees and would ask them for help. I found that employees were always willing to take time to help me understand what was being done.
4. Be open-minded. It will be more rewarding if you try to learn everything about your job.
5. Be aware that internships involve odd jobs just like a regular position. Some things that I did during my internship were data entry, filing, washing vehicles, mapping, and making and repairing equipment.

I enjoyed my internship a great deal and highly recommend the Pennsylvania Fish and Boat Commission as an agency to consider for your internship.



part of my first couple of weeks. Scales are taken from the fish after they are captured while electrofishing. The scales are taken back to the lab where they are pressed onto plastic slides and projected onto a white tabletop. The annuli, yearly growth rings, can be seen as dark circles around the center. These are counted to determine the age of the fish.

My first look at field work came in the second week when I worked at night on the Juniata River electrofishing

Susquehanna Fish Lifts & THE RETURNING SHAD

by Scott Carney

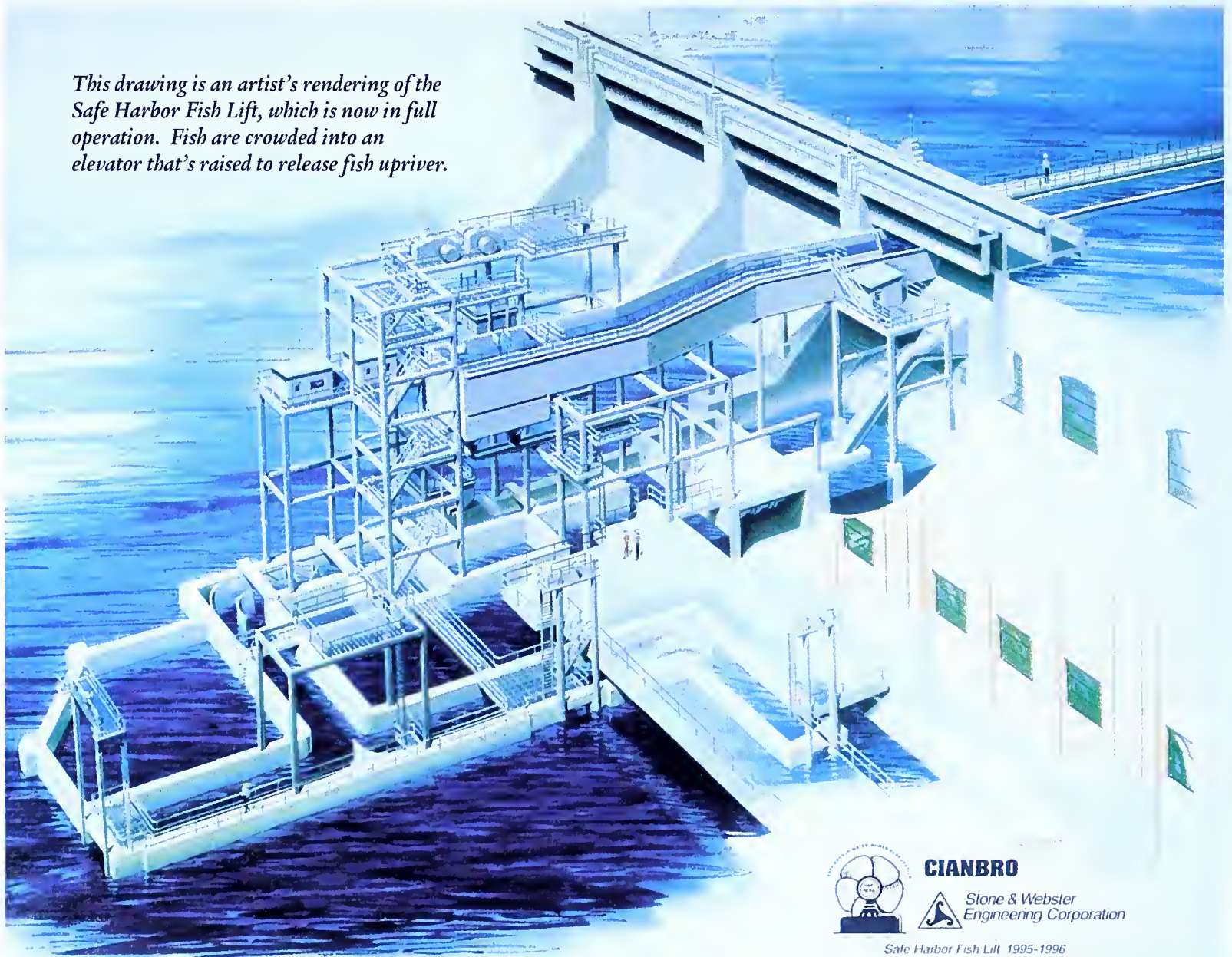
Despite chronic weather-related setbacks, the fish lifts at Holtwood and Safe Harbor dams will be completed and in operation by April 1997, marking a major step in the opportunity for American shad and other migratory fish to have free access to historical spawning grounds in Pennsylvania. This May 29, Safe Harbor Water Power Corporation, Baltimore Gas and Electric Company and the Pennsylvania Power and Light Company will host a joint ceremony dedicating the lifts. Public "open house" at each facility will begin several

days after the dedication ceremony. Tours of the Safe Harbor fish lift and public viewing window and the Holtwood fish lift will be conducted throughout the migratory season (April-June). Tour registrations for each facility can be made by contacting Karen Chandler, Safe Harbor Water Power Corporation, at (717) 872-0204, and the Pennsylvania Power and Light Holtwood Land Management Office at (717) 284-2278. Fishing access within the Safe Harbor project will continue to be prohibited until structural damage to the skimmer wall

from the January 1996 flood is repaired.

In the early 19th century, American shad were one of the most valued commodities for commerce and daily living in the Susquehanna River Basin. Numerous commercial fisheries operating in the basin recorded annual landings in the thousands of pounds. The sheer numbers of shad migrating up the Susquehanna from Chesapeake Bay seemed inexhaustible. In the mid-nineteenth century, the construction of feeder dams for the Pennsylvania canal system and water supply dams

This drawing is an artist's rendering of the Safe Harbor Fish Lift, which is now in full operation. Fish are crowded into an elevator that's raised to release fish upriver.



CIANBRO



Stone & Webster
Engineering Corporation

Safe Harbor Fish Lift 1995-1996

Artwork provided by Safe Harbor Water Power Corporation

Completing the Susquehanna River fish passage projects will open more than 500 miles of large-river habitat to migratory fishes.



blocked migrations to most of the upper basin and tributaries. Diminishing water quality from deforestation, coal mining, and industrial and agriculture development; riparian encroachment from urbanization; and overfishing also impacted fish numbers. Public concern over the depletion of shad and other fishes increased and prompted an 1866 act by the Pennsylvania Legislature establishing the precursor to the present-day Pennsylvania Fish and Boat Commission (PFBC).

The final demise of shad and other migratory fishes in Pennsylvania's Susquehanna River came with the construc-

tion of four large hydroelectric dams on the lower Susquehanna in the early 20th century. Although one of the first dams constructed (Holtwood) was equipped with fish passage facilities, the design failed to pass shad. As a result, fisheries experts conceded that fish passage was not feasible with the technology available at that time.

The completion of Conowingo Dam just below the Pennsylvania-Maryland border in 1928 completely blocked access to the Susquehanna Basin in Pennsylvania and New York. The seemingly inexhaustible resource and important part of the heritage of Pennsylvania was lost.

In the mid-20th century, water quality and the development of fish passage technology had improved to the point that restoration of shad was determined feasible. During the last four decades, the PFBC, along with other federal and state resource agencies and private interests, have worked cooperatively with the utility companies that own the hydroelectric dams to restore American shad and other migratory fishes. Since 1970, the power companies have provided vital funding for the restoration research through a series of cooperative agreements with the resource agencies. These efforts ultimately resulted in establishment of a population of American shad once again imprinted to the Susquehanna Basin.

The permanent fish passage facilities now in place at Holtwood and Safe Harbor dams resulted from an historic agreement signed in 1993 by the governors of Pennsylvania and Maryland, along with utilities, fisheries agencies and public fishing interests. The agreement also provided for fish passage at York Haven Dam by 2000. Fish passage facilities at Conowingo Dam began operation in 1991 under a separate agreement. In addition, the PFBC has secured an agreement in principle with the Pennsylvania Department of Conservation and Natural Resources that calls for the construction of permanent fish passage facilities at the Fabri Dam in Sunbury. With the completion of Susquehanna River fish passage projects, over 500 miles of large-river habitat will be open to migratory fishes. Hundreds



Susquehanna Fish Lifts & THE RETURNING SHAD



Susquehanna River at Harrisburg

of additional miles of tributary habitat will be restored through smaller fish passage and habitat restoration projects funded by the EPA Chesapeake Bay Program and administered by the PFBC.

Other activities continue. The PFBC is conducting bio-monitoring studies to track shad populations and distributions. Juvenile shad and pre-spawn river herring are stocked throughout the basin to establish populations imprinted to specific waters. Studies have demonstrated that turbines at Safe Harbor and Conowingo dams allow exceptionally high survival of juveniles migrating downstream. Holtwood Dam, however, will be testing a bypass system that will allow out-migrating juveniles downstream passage without going through the turbines. Safe Harbor Water Power Corporation used material excavated for fish lift construction to stabilize stream banks along the Conestoga River, Lancaster County. Tributary fish passage and habitat restoration projects are restoring free-flowing river conditions through the breaching and removal of non-beneficial low-head dams.

American shad restoration is working. The number of adult shad returning to the Susquehanna to spawn has increased dramatically in recent years. In the early 1970s, only about 100 shad were captured annually at Conowingo Dam. Since 1994, the number of adult shad captured at the Conowingo fish lifts has averaged 45,000. Marking studies have determined that the majority of these were produced by the Commission's Van Dyke Hatchery and stocked into the Susquehanna Basin. Others are the decedents of pre-spawn adult shad collected at the Conowingo lift each spring and released upstream of York Haven Dam.

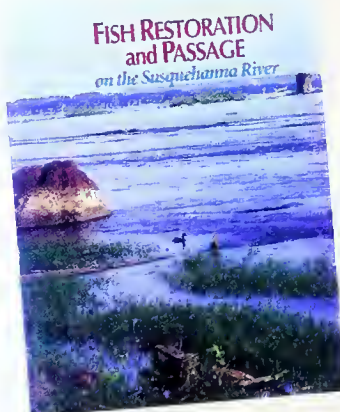
Restoration is currently managed under the auspices of the Susquehanna River Anadromous Fish Restoration Cooperative (SRAFRFC), whose membership in-

cludes the Pennsylvania Fish and Boat Commission, U. S. Fish and Wildlife Service, National Marine Fisheries Service, Maryland Department of Natural Resources, New York Department of Conservation, and the Susquehanna River Basin Commission. Additional support for the restoration has been provided by the Pennsylvania Department of Environmental Protection, Alliance for the Chesapeake Bay, Chesapeake Bay Foundation and numerous fisheries interests. The program to restore American shad to the Susquehanna River is one of the largest of its kind ever envisioned and has been a model of persistence, cooperation and long-term commitment. The ultimate goal is to restore an annual population of two million American shad and 15 million river herring to the Susquehanna River Basin. The restoration of American shad and other migratory fishes to the Susquehanna will provide enormous angling opportunities and other economic benefits to the citizens of Pennsylvania.



R. Scott Carney is a fisheries biologist in the Commission Division of Research, Anadromous Fish Restoration Unit.

Using funding provided by the U. S. Environmental Protection Agency's Chesapeake Bay Program, the Pennsylvania Fish and Boat Commission is providing fish passage and habitat restoration on major tributaries to the Susquehanna River through the breaching and removal of non-beneficial dams. Environmental effects associated with constructing dams and impounding streams include prohibiting the migratory movements of fish, sediment deposition, formation of nutrient traps, and reduction in the levels of dissolved oxygen. In addition, many low-head dams create a dangerous hydraulic that poses a hazard to anglers and boaters. Breaching and removing non-beneficial dams restores the structure and function of the riverine ecosystem and eliminates potential safety hazards. At dams that serve a functional purpose, the Commission is negotiating with the dam owners for fish passage through the construction of permanent fishways or "fish ladders." Fishways provide passage over the dam without compromising those benefits the dam provides. However, the damaging environmental effects of impounding the river and public safety issues remain unaddressed.



Fish Restoration and Passage on the Susquehanna River

Fish Restoration and Passage on the Susquehanna River is the title of a 16-page full-color publication that explains in detail the history of Susquehanna River migratory fishes, the reasons for their demise, and the efforts to restore their populations. The publication was a cooperative effort among the PA Fish & Boat Commission, U.S. Fish & Wildlife Service, Susquehanna River Basin Commission, PA Department of Environmental Protection, Chesapeake Bay Foundation, and the Alliance for the Chesapeake Bay. It appeared initially as an addition to the February 1996

PA Angler. For a free copy, send a request to: Publications Section, PA Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.

Small Outboards

Puttering Cleanly into the 21st Century

by Bob Ballantyne

The smoke chokes, the noise annoys, and the hand mixing of fuel and oil is a pain. Nevertheless, the small outboard motor is popular with many, especially the 9.9 horsepower versions designed specifically for the myriad of lakes that impose a 10 hp limit.

But a revolution is in the making, one driven by the Clean Air Act, which the federal Environmental Protection Agency (EPA) is charged with enforcing. EPA's mandate to the boating industry is to reduce hydrocarbon emissions from marine gasoline engines by 75 percent by the year 2006. The emission of nitrous oxide and nitric oxide, collectively called NO_x, must also be reduced. For these reasons, small-outboard manufacturers are creating new ways to make our small outboards run cleaner, thus better protecting our waterways.

The initial casualty may be, at least for the near future, a temporary demise of the two-stroke small engine. According to Robin Senger, a product engineer with Yamaha, 2-strokes are the most difficult engines in which to control emissions. To meet federal standards, most manufacturers are moving to the marketing of 4-stroke engines for the 25 and under horsepower class.

The problem with the 2-stroke engine is that the fuel is a hand-mixed combination of oil and gasoline, and the oil is burned in the combustion chamber with the gasoline. That leads to the classic white smoke produced by small outboards. That white smoke is loaded with air-polluting hydrocarbons and NO_x.

Lest small-boat operators feel picked on, keep in mind that other users of small-engine technology are also affected. Manufacturers of items such as string trimmers, chain saws, and of course, gasoline-driven ice augers are also under clean-air mandates.

Small outboard engines are not limited in popularity to those who operate boats on small lakes. Offshore operators of larger watercraft often use such engines as trolling motors and refer to them as "kickers." They produce an extra measure of safety and security—these low-horsepower kickers provide enough thrust to get many larger boats back to the marina when the main engine is disabled.

According to Senger, "operators of larger boats like the new 4-stroke technology because they use the same fuel as their larger engines."

There are also many conveniences for the small-boat operator. Operation of small, 2-stroke motors in the trolling mode is noisy, and depending on wind conditions, the operator can end up inhaling an inordinate amount of exhaust. Also, there is no mixing of fuel and oil to be done for 4-strokes, and they are much more maintenance-free.

The reduced exhaust, of course, is also a bit more environmentally friendly, and that is what the issue is really all about.

On larger outboards other technologies may come into play, and Yamaha is experimenting with a catalytic converter. The platinum-lined chamber is about the size of a coffee can. The technology has been in place for many years in automobiles, but marine use creates special problems. Water getting into the catalytic chamber would be a major safety problem.

That problem and others may be overcome by the technicians for larger engines, but size will probably preclude the use of catalytic converters on small outboards.



Senger sees an increasing manufacture of small engines of the 4-stroke design, and indicates the 2-stroker may be completely phased out by the year 2003.

However, Fernando Garcia, the Director of Research and Development at Bombardier, doesn't see the tough new standards as necessarily a death knell for 2-cycle engines. A member of the Society of Automotive Engineers, Garcia often represents the entire marine small-engine industry in its dealings with EPA. He expects that newer technologies may save the 2-strokes.

What small-engine manufacturers must do to comply with federal clean-air standards is reduce the average of the emissions from all their engines. Engines will be grouped by manufacturers into "families." Starting in 1998, the average of the emissions of each family of engines must be reduced each year by 8 1/3 percent. "The corporate-averaging formula used by EPA is complex," according to Garcia, "but basically it will lead to reducing hydrocarbon emissions on the dirtiest engines first. Switching from 2- to 4-stroke engines will be an immediate fix."

A variety of factors will enter into the complex formula by which the industry will be judged. The number of units of each engine sold will constitute what is called the "sales weight." Survivability in the field will also be a factor.

Manufacturers are in the process of trying to determine some baseline data by testing emissions on engine models produced in the early 1990s. In fact, according to Senger, manufacturers may later be buying back the newer engines from the consumer to judge what the field experience will be with the new technologies.

A re-engineering of 2-stroke outboard engines below 25 horsepower is already underway. It basically involves three things. The first is the development of electronic carburetors, or "other smarter carburetors," as Garcia puts it. Electronic fuel injection will also be tried, as will more accurate digital or optical ignition systems. These are expected to reduce hydrocarbon emissions by five to 20 percent.

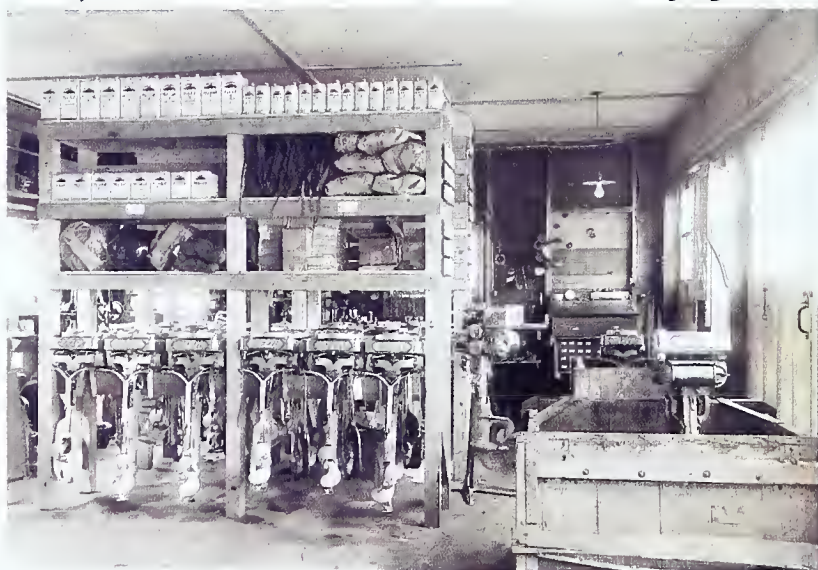
Direct injection of fuel is another area of research. Fuel and oil will not be drawn into small engines as it now is, but will be directly injected into the engine after the piston has closed ports in the combustion chamber. However, this requires high-pressure fueling.

It is obvious that a technological revolution is underway in small engine manufacturing, one that will certainly produce a more costly small engine. The cost, however, will be offset by the knowledge that puttering around a lake with a 21st century outboard motor will be far more healthy for wild creatures as well as for humans.

The Evolution of Pennsylvania Boating: *Then, Now and the Future*

by John Simmons

In the early 1980s, the Commission purchased its first desktop computer—a Radio Shack TRS 80. At the time this machine was considered to be at the forefront of technology. It consisted of a monitor and a processor. It had 64 Kb of memory and stored programs and data on a cassette tape. The screen display was a wonderful fluorescent-green on black. By 1985, the development of computers had progressed by leaps and bounds. The Commission purchased its first MSDOS-based machines. These were real screamer machines. The processors were 6 MHz 286's with 640 Kb of memory. They had hard drives that enabled the storage of operating programs and "vast quantities of information." My first machine had the latest hard drive—a whooping 30 Mb.



How far we've come in the last 10 years! The machine that I am using to write this article has a 166-MHz Pentium processor with 32 Mb of memory and 1.2 Gb of disk storage. It has an SVGA screen with one million color resolution. My word processing program has spellcheck and can even correct my grammar. Much of this is done while I'm typing. It's almost like having my high school English teacher looking over my shoulder ready to crack my knuckles if I make a mistake. Only 15 years after the Commission purchased its first computer, I have more power in the machine on my desk than our first mainframe computer. How the world has changed.

The world of boating has also changed. Bess Evinrude said in an early advertisement "Throw the oars away." Ole Evinrude's first outboard engines revolutionized boating. From the first 2- and 4-horsepower engines, the outboard grew to the 8- and 40-horsepower engines of the 1920s and 1930s. As late as the 1950s, an outboard larger than 60 horsepower was a novelty. Then came the 1970s and 1980s when the rush for ever larger outboards was on. I remember purchasing the Commission's

first 175-horsepower engine in the mid-1970s. It was a huge engine by the day's standards. Yet, soon we were buying 200- and 225-horsepower behemoths. Boats were getting bigger and we began mounting two on a transom.

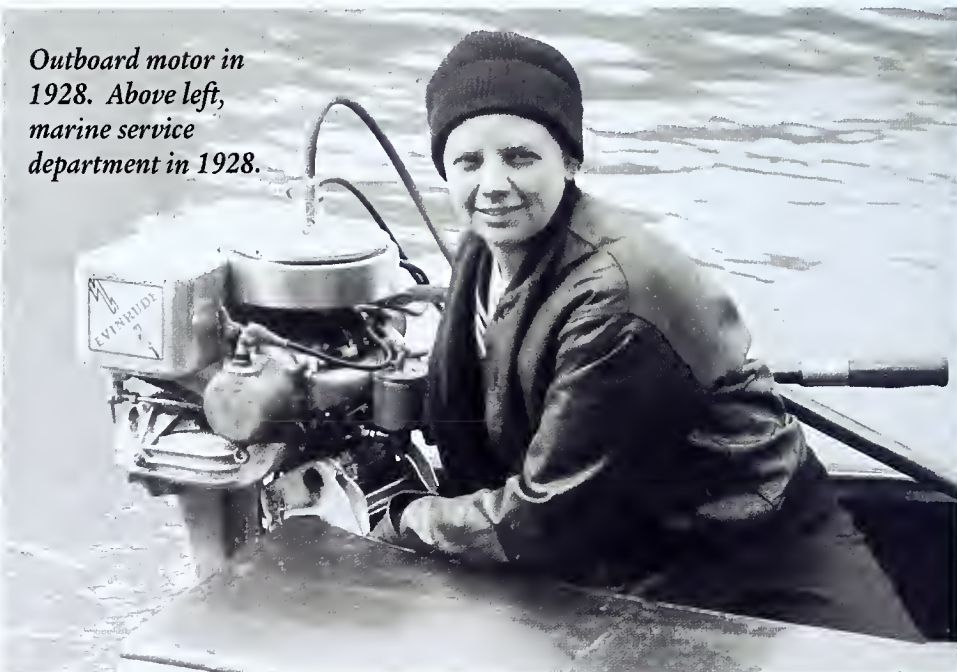
Where will it end? According to Ralph Lembrecht, a marine engineer and safety standards consultant, "We've seen the end of the horsepower race in outboards." Not because we can't build bigger engines, but because their high costs limit demand and turn consumers to more competitively priced inboard engines. Environmental Protection Agency (EPA) clean air requirements are also forcing engine manufacturers to develop new and expensive technology. You'll now hear terms like EFI, DFI and FICHT. These are great technological advances, but will they be enough?

As I see it, the boating market is beginning to split into several distinct markets. The most common market is the small aluminum fishing boat. Pennsylvania has historically registered about 60 percent of its boats in the less-than-16-foot category. Most of these craft are fishing boats. Then there is the large cruiser class comprising a very small percentage in Pennsylvania. Between is the family runabout.

The propulsion of choice is vastly different among these groups. The aluminum fishing boat has, and always will, use the outboard as its primary propulsion. The cruiser is most likely to continue to use one or two inboard engines coupled with an outdrive. But what will propel the family boat of the future?

In the 1970s, Kawasaki Motor Corporation quietly introduced a boat that would forever change boating. The Jet Ski was a waterborne bottle rocket powered by an inboard engine and a water jet pump. It offered the athletically inclined an option to being towed behind a boat on waterskis. For the first time, a boater could enjoy the exhilaration of skiing without the constraints of a conventional boat.

Outboard motor in 1928. Above left, marine service department in 1928.





At left, fishing from a boat in 1947. Below, one of today's newest boats crosses the look of a traditional powerboat with the propulsion of a personal watercraft. In the future, the outboard engine as we know it might disappear, replaced with jet inboard units—environmentally clean, easily maintained, and safe to operate.

Sales of this boat were brisk but limited. Other boat manufacturers were impressed with the initial success of this market and began to develop other boats of this kind. Soon, enough of these boats were around that we developed a whole new terminology. The “personal watercraft” (PWC) was born. Through the late 1980s and 1990s, more manufacturers entered the market. The boat evolved from a one-person machine to a two-person, and finally to a three-person machine. The size of the boat went from the seven-foot Jet Ski to more than 10 feet for the newer three-person models. The development of these larger boats required larger, more efficient engines. The Jet Ski was powered by a 550cc engine equivalent to about 55 horsepower.

Today's personal watercraft are powered by 1100cc engines that develop more than 110 horsepower. Beyond larger engines, the water pumps are also becoming more efficient, making for one heck of a power plant.

I don't know whether the larger boats drove the need for a larger engine or a larger engine drove the need for a larger boat. Either way, the manufacturers of personal watercraft are leading the way in boating today. Last year, one in every three boats sold was a personal watercraft. In Pennsylvania, the number is nearly one in two.

To continue the evolution and to make maximum use of technology and manufacturing capabilities, manufacturers are turning to traditional boats to be powered by the same engines used in personal watercraft. In 1994, Bombardier Corporation was first in this new market when it introduced the “Speedster.” This 14-foot boat took on the look of a traditional boat but crossed with a personal watercraft. Its power unit was a little light, but it made the crossover very well. The boat became popular with buyers who wanted the advantages of the personal watercraft but didn't want to get wet all the time. In 1996, Bombardier introduced the “Challenger.” They equipped this boat with a single 800 Series Rotax, 2-cylinder 782cc 110-horsepower engine. This 15-foot boat could pull most waterskiers with ease. Not to be outdone, Yamaha introduced its “Exciter” model in the same year. Outfitted with twin 110-horsepower engines, its top speed can reach 55 mph. Not bad for a 17-foot boat powered by a water jet.

Do you think that size relegates jet drives to mini-boats? Think again. Mercury Marine is developing a SportJet Drive that will be mated to a big 175-hp 2-stroke V6 power head. Scarab boats, most often associated with the go-fast muscle boats of Miami Vice fame, has joined with Volvo Penta to match a PowerJet X jet pump

and a 200-hp 4.3 liter V6 engine to power a 19-foot screamer.

It is said that the size, power and speed of the personal watercraft is reaching its technological limits. The same is not true for traditional boats. Manufacturers are going to be looking for places to use their new engine designs. The traditional boat market is ripe for picking.

What does all this mean to the average Pennsylvania boater? You've probably noticed that the names of the boats I mentioned above invoke excitement and suggest speed and reckless abandon. While this is probably true to a degree, much of this hype is intended to sell boats to a ready market. However, we should all be aware of a greater underlying development, one that will profoundly affect our boating in the next decade. The use of a propeller for traditional boat propulsion, while efficient, has many dangers. Everyone who operates a boat knows what happens when the boat hits a log or rock. Who goes a season without replacing a prop at least once? How many times has your boat been in the shop for repair of a lower unit? Skiers and others who use their boats as a platform for these activities know the dangers of being in the water with a propeller in motion. Each year, unintended contact with a boat propeller injures hundreds of people.

Is the answer looking at us in the form of the inboard-powered jet? I think so. The venerable propeller will be with us for many years to come for the small fishing boat. It will be around for a while yet on larger craft. Nevertheless, runabouts in the 14-to 22-foot range will experience a significant shift in their choice of propulsion. The outboard engine will virtually disappear for boats in this class, replaced by environmentally clean, safe-operating and easily maintained jet inboard power units. We may

at times condemn the personal watercraft, but as in many things, the technology developed for these boats will be used in ways not originally designed or planned.

In his 1970 book *Future Shock*, Alvin Toffler predicted that the common man would have a computer on his desk linked to millions of other computers for the immediate exchange of information. I don't

think even he thought his prediction of the Internet would be realized so quickly. Is it unrealistic to think that we can't experience the same speed in the transformation of boat powering?



John Simmons, Director of the Commission Bureau of Boating and Education, is the state's boating law administrator. He is also secretary of the National Association of State Boating Law Administrators.

FUN TO THE **EXTREME!** by John W. McGonigle

Time was when people sought relaxation from water by watching waves breaking on the beach, listening to the quiet murmur of a brook or by drifting off to sleep listening to the gentle patter of rain on the roof. But times change and people seek relaxation in different ways. Many seek it actively rather than passively, and they seek it by having fun. Some by having fun to the extreme!

Thrill-seekers have demanded, and gotten, a new generation of personal watercraft (PWC) that are more powerful and that provide more speed for those who crave it. In fact, the growth of the genre has pushed manufacturers to expand their horizons and provide small, maneuverable craft with jet drive engines to accommodate those who enjoy the benefits of PWC but want more comfort. The new craft are called jet boats. They are more versatile than a PWC, and you will see more and more on our waterways.

First, though, let's look at PWC because their proliferation continues over a wide range of waterways, including Pennsylvania's.

Pennsylvania boat registrations for 1989 showed that personal watercraft accounted for only 1.2 percent of the 278,535 boats registered, or a total of 3,225 PWC. By 1995 (the last year for which figures are available), 15,392 PWC were registered, accounting for nearly 5 percent of the total number of boat registrations (330,426). Commission press secretary Dan Tredinnick said, "The number of PWC on our waterways is going to continue to grow."

Tredinnick indicated that in addition to being popular in their own right, PWC are catching on with owners of large boats, including houseboats and pontoon boats, as a recreational offshoot to their larger investment. "You should see the number of PWC zipping around on Raystown Lake," said Tredinnick. "Many are associated with the larger boats on the lake."

By definition, PWC are U.S. Coast Guard Class A Inboard boats less than 16 feet in length powered by an inboard motor and a water pump. They are designed to be operated by one person sitting, standing or kneeling and some models can carry up to three passengers.



According to National Marine Manufacturers Association statistics, PWC sales in 1995 increased nationally by 40.8 percent to 200,000, up from 142,000 in 1994. A staggering 900,000 PWC were in operation nationally in 1995. PWC sales in 1995 were over \$1 billion. The '95 average retail cost of a PWC was \$5,722. Industry statistics show that 34 percent of all powerboats sold in '95 were PWC. Some 97 percent of all PWC shipped in the U.S. were sit-down models and the remaining 3 percent were stand-up models.

Steve Barker and Merritt Kersey, from Stoltzfus RV and Marine Sales, West Chester, PA, provided useful background information on both PWC and the new jet boats. Barker said, "Hey, they're popular because they're fun." He said many riders were after the 50-70 mile per hour speed offered and asked if I remembered my first time driving a motorcycle. With a smile he said, "It's just that simple."

Kersey offered a broader approach to the appeal of the jet-powered craft. "The industry believes these boats are safer because there is no external propeller, which makes them good for water skiing and kids swimming near the boat."

A second big feature, according to Kersey, is the shallow draft that allows tremendous freedom where you travel. "These boats

are great for the back bays and our shallower waterways since you rarely have to worry about running aground, a big problem for regular runabouts with traditional outboard engines." Angler may view these boats as alternatives to traditional propped fishing boats, and some manufacturers are building fishing boats in these new, sleek, so-called "Star Wars" designs.

Kersey also pointed out that people with big boats are using jet boats as their runabouts instead of inflatables as many did previously. "Additionally," said Kersey, "the jet boats are significantly quieter than outboards, and that appeals to some people."

Kersey was quick to echo Barker's thoughts on the fun provided by both types of craft: "Their quick maneuverability provides as much fun for many as does their speed."

"PWC and jet boats are light and easy to trailer," said Kersey, "as well as being more affordable than comparable propped craft."

Tredinnick pointed out figures showing that although PWC make up just under 5 percent of Pennsylvania's powerboat registrations, they account for 52 percent of all boat collisions, and 34 percent of all boating accidents. "People don't realize that boats, including PWC, don't have brakes," said Tredinnick.

Tredinnick stressed state regulations that require wearing a personal flotation device, but said more needs to be done. Pennsylvania also requires that rental liveries give instruction to those renting PWC.

An industry spokesman, who asked to remain anonymous, pointed out some shortcomings of PWC and jet boats. He said, "they are small and often overpowered, a dangerous combination. Furthermore, they have a low profile and are very difficult to see." He also warned of the danger of jet boats being swamped if a wave rolls over the bow. Readily admitting their good points, he suggested, "just don't look at them through rose-colored glasses." He suggested that both crafts require great responsibility to operate safely.

PWC and jet boats are here to stay. Their use is increasing and they are loads of fun. Just remember what the old police sergeant used to say: "Hey, be careful out there."





*Rattlesnake Run,
Little Toby watershed*

Fishing the Little Toby Watershed

by Robert L. Petri

Thirty years ago, the waters of Little Toby Creek and the majority of its tributaries in Elk and Jefferson counties were yet another of the grim reminders of what a century of coal operations had done to too many of the flowing waters of our Commonwealth. The bare and scarred tops of the ridges framed a valley that cradled streams where nothing lived. In our rush to take the coal from the land, we forgot the lifegiving importance of the waters. It was not a pretty sight.

But 30 years can also make a great difference when a community and its concerned citizens come together to try to right a century of wrong. And here, in the coal-rich hills of Pennsylvania's mid-section, perseverance and commitment to a cause have led to the resurrection of the Little Toby Creek watershed. Trout now swim in places where once the water fell over rocks stained orange with mine acid, and a major new trout fishery is emerging from the ruins of our mistakes of the past. It is a story with a lesson for all about the power of partnerships forged among government, industry and everyday folks who care about the quality of life for their children, and it's also a new lease on life for one of north-west Pennsylvania's most scenic watersheds.

Current Pennsylvania Fish and Boat Commissioner Bill Sabatose of Brockport, in southeastern Elk County, has been a prime mover in the restoration of the Toby Creek watershed since the first

informal meetings of concerned area citizens took place in the late 1960s. Out of these early meetings evolved the Toby Creek Watershed Association, a group committed to restoring their home stream as a fishery. When the group first met to discuss the situation, they were looking at a watershed with over 125 separate sources of mine acid degradation. According to Sabatose, over 95 percent of these sources

were flowing from abandoned mines.

Undaunted by the immensity of the task before them, the citizens of the Toby Creek Watershed Association went to work identifying and delineating the extent of the problem and planning a strategy to bring Toby Creek back. As the years went by, their perseverance began to attract a wide range of partners from government, industry and the conservation community. Good things began to happen.

In the mid-1970s, the Pennsylvania Department of Environmental Resources initiated "Operation Scarlift," a program fueled by a \$500 million bond issue aimed at reclaiming streams destroyed by mine acid. Shortly thereafter in 1977, President Carter signed the Federal Surface Mining Control and Reclamation Act, a law aimed at preventing future degradation of our streams by mine acid and authorizing federal assistance in the huge task of cleaning up the damage that had been done throughout the Appalachian region.



Little Toby, from Brockway to the mouth on the Clarion River, found water quality suitable for addition of the stream section to the Commission's list of approved trout waters. A preseason stocking of brook trout that year in this lower portion of the Little Toby marked the return of a major area watershed to the ranks of the living.

The Little Toby Creek watershed in Elk and Jefferson counties drains 126 square miles of Pennsylvania's rugged Allegheny Plateau. Despite decades of damage from acid mine drainage, these streams remain among some of the most beautiful we have here in the Keystone State. Where they have not been degraded by mine acid, many of the Little Toby tributaries hold good numbers of wild brook trout in a near-wilderness setting.

No portion of the watershed is more striking and beautiful than the 12.2-mile section of the Little Toby from the town of Brockway along US Route 219 in extreme northeastern Jefferson County to the stream's junction with the Clarion River near the village of Portland Mills along PA Route 949 in southern Elk County about 10 miles west of Ridgway.

This section of the Little Toby is big water by Pennsylvania trout stream standards, averaging between 50 and 70 feet wide. Despite the size of the stream, a good canopy of streamside tress and the flow from a number of small, icy tributaries that enter throughout this section help keep water temperatures comfortable for trout almost all through the summer.

One of the major attractions of this portion of the Little Toby is its isolated nature. Even though there is fairly good road access for the first four miles downstream from Brockway and from the mouth along 949 upstream for about two miles, the middle six miles of the stream section flows through a roadless portion of State Gamelands 44, and finding a place of your own

Together, these events helped provide the necessary governmental support and financial fuel for the Toby Creek Watershed Association and its partners to proceed in the reclamation of their home stream. One by one, the worst of the sites in the Little Toby watershed were addressed and corrected. With the use of volunteer manpower and a host of grants and other support from industry, treatment facilities using crushed limestone were constructed on several of the worst discharges and a number of deep mine seeps were sealed and stopped.

It has been a long road back for the Little Toby. According to Bill Sabatose, at the beginning of the project, stream pH measurements on the Little Toby at Brockway were in the mid to upper threes, a full point and a half below the level at which almost anything can survive, and nearly three points below the range generally accepted as viable trout habitat. In 1989, however, the first 20-plus years of hard work paid off when Pennsylvania Fish & Boat Commission stream surveys in the lower 12.2 miles of the



Tom Colgan with a 27.5-inch, 6-pound Little Toby Creek rainbow trout

photo: Bill Sabatose, map: graphic-Ted Walke

there is usually pretty easy. An abandoned railroad grade that has been converted into a hiking and biking trail parallels this section of the Little Toby to provide access to anglers and facilitate good distribution of fish when the stream is stocked. A healthy preseason stocking of brook trout is followed by an inseason plant of brooks and browns, keeping good numbers of fish in the stream well into June and July.

Angling puzzle

Like a lot of Pennsylvania trout streams of its size class, the Little Toby can be a puzzle to fish. There is abundant cover here, and many good hiding and resting places for the resident fish. In some sections, huge boulders dot the stream bottom. In others, long, deep pools with undercut banks dominate. It can be hard to know where to begin.

One of the best ways to solve the riddle of the Little Toby and other streams of its size class is to use an approach that separates the entire flow into a series of smaller, more manageable sections of water. Then concentrate on these areas just as you would if you were fishing a smaller stream. You will find that doing so will add greatly to your success.

Baits, lures

Once you find them, the trout of the Little Toby respond well to most of the conventional offerings that produce fish in streams across the state. Bait anglers can do well with nightcrawlers, red worms and crayfish drifted through the riffles and down into the pools on a light line with as little weight as possible to ensure a natural drift. Spin fishermen should explore the undercut banks and the slack-water pockets behind boulders with spinners and small crankbaits.

As a recovering stream, the Little Toby does not offer many large hatches of aquatic insects to provide action for the fly angler. Still, there are decent hatches of various caddises in shades of olive, tan and gray all through the spring, and May and early June bring their share of rising fish here that can be tempted with an Elk or Deer Hair Caddis dry fly in sizes 12 through 18.

The best fly fishing the stream has to offer is to the angler fishing nymphs, streamers or Woolly Buggers. Try drifting a size 12 Hare's Ear nymph through the pockets.

As spring gives way to summer, look for the trout in the more highly oxygenated sections of the stream, along the creases or dividing points in the flow between fast and calm water. The mouths of the numerous small, cold tributaries that enter the lower reaches of the Little Toby are also good places to prospect for trout seeking thermal relief when the summer sun begins to heat the water beyond their comfort level.

Try the tribs

In addition to providing the main stem with a constant influx of cold, clean water, several Little Toby tributaries are good trout fisheries. Belmouth and Laurel runs are a pair of small streams that enter the Little Toby within a few miles of its junction with the Clarion River, and both provide good brook trout fishing. Belmouth Run's wild brook trout population is supplemented each year by a single preseason stocking of brook trout. Laurel Run, according to Commission Area 2 Fisheries Technician Alan Woomey, has a fluctuating but decent population of small wild

brookies. It has been managed under the Commission's wild trout program since 1988, and no trout are stocked.

A few miles farther upstream, Vineyard Run tumbles through the forests of State Gamelands 44 to add its flow to the Little Toby. Like Laurel Run, it has a good population of small wild brook trout. Good water quality and walk-in only access have led to Vineyard Run's addition to the Commission's Wilderness Streams program.

Small-stream trout fishing opportunities in the Little Toby watershed are not limited to the tributaries entering the isolated section of the stream below Brockway. Rattlesnake Creek enters the Little Toby about a mile south of Brockway along US Route 219. This small to moderate-size stream is stocked with brook and brown trout from the mouth upstream for approximately 3.8 miles. Most of this section flows along Route 219 and access is good for the most part. According to Commission Area 2 Fisheries Manager Ron Lee, some of the first substantial acid mine drainage remediation work in the

Little Toby watershed was performed on Rattlesnake Creek in the late 1960s.

Rattlesnake Run is a small tributary to Rattlesnake Creek that enters from the west near the crossroads village of Lane's Mills along US Route 219 south of Brockway. While the headwaters section of Rattlesnake Run holds some wild brook trout and is not stocked, a 2.7-mile section from the mouth upstream receives annual plants of brook trout. The Beechtree Road (State Route 1008) parallels most of the stocked section of Rattlesnake Run. Like its parent stream, Rattlesnake Run has benefited from mine acid reclamation work that occurred in the watershed in the early 1970s. This work helped improve the water quality to a level where the stream was judged suitable to be added to the catchable trout program in 1972.

Just north of Brockway, Walburn Run crosses Route 219 from the north to add its flow to the Little Toby. This small stream is stocked with all three species of trout from the mouth upstream to the junction of its East and West branches. A scattering of wild brook trout can also be found here. The Toby Creek Watershed Association and its partners have installed a limestone treatment device on Walburn Run to neutralize the effects of lingering mine acid drainage in its watershed.

Yet another Little Toby tributary, Meade Run, at the village of Brockport along US 219 a few miles north of Brockway, is also being treated for mine acid abatement. Commission water quality surveys in 1996 indicated that the stream has now improved to the point where it may also soon be added to the catchable trout program.

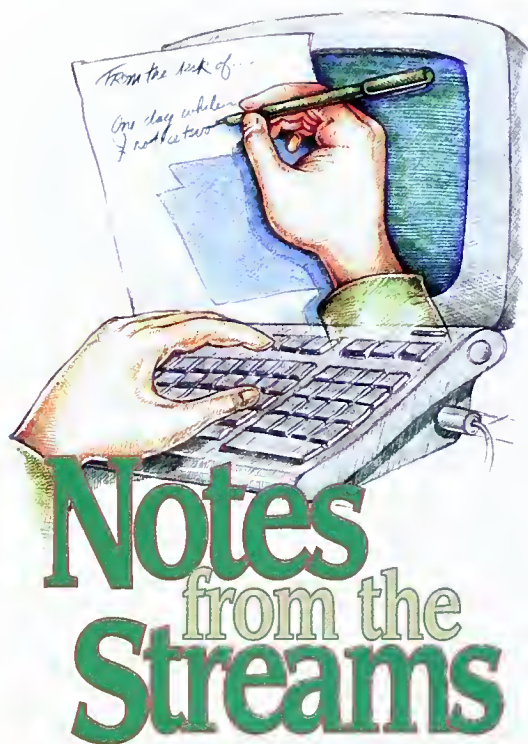
Even though the successes in restoring the lower portion of the main stem of Little Toby Creek and such tributaries as Rattlesnake, Walburn and Meade Runs indicate the tireless commitment of the Little Toby Creek Watershed Association and its many partner, the group is far from resting on its laurels. According to Bill Sabatose, the eventual goal is the restoration of the entire watershed to health, a total of 28 miles of water. And if anybody can do it, these folks can.

Water quality in the main stem of Little Toby upstream from Brockway remains poor as a result of acid mine drainage. But the future looks brighter than at any time in the last 30 years.



Commissioner Bill Sabatose with a Little Toby Creek brown trout





Some do grow up

Not all of our stocked trout are caught right away. Some of them do grow for several years before they are caught by a lucky angler. Last May 11, Jason Wiltrout from Salisbury caught a 24 1/2-inch brown trout from the Youghiogheny Reservoir. The trout weighed just over five pounds. It had an adipose fin clip and it had been stocked in 1994. That year the Salisbury-Elklick Hunting Club and the Beaverdam Run Trout Club stocked nearly 1,500 trout in the Reservoir. All of the trout stocked that year by the clubs were fin-clipped. The trout was 14 to 16 inches in length when it was stocked in 1994.—*Commissioner Donald K. Anderson.*

The long road

As part of my field training assignment in Lehigh County with WCO Fred Mussel, I was required to give a presentation on the selection and training of waterways conservation officer cadets at two sportsmen's club meetings. At first I failed to see the wisdom of this exercise. However, while I was actually preparing the presentation, it dawned on me just how long and involved the process of becoming a waterways conservation officer was. We began the testing process in late 1994 and now it was April 1996 and we were still in training. Equally amazed were our audiences to learn that our basic training was longer and more thorough than any other Pennsylvania law enforcement agency. They were also intrigued that we were trained at an accredited municipal police officer academy in addition to and before an even longer educational process

at our Fish and Boat Commission academy. The ensuing positive comments from these sportsmen showed their pleasure in knowing that their conservation officers would be able to so completely serve their needs after they graduated and received their duty assignments.—*WCO George Geisler, northern York County.*

Persistence pays off

During a three-day period last September, I had the privilege of watching a very persistent fisherman from my office window at Lake Somerset. Although his methods were unconventional, his success rate was well above that of the average angler.



This "fisherman" was a great blue heron that stopped by on his way south. I believe if conventional anglers had the patience of a great blue heron, their rate of success would also be above average.—*Emil Svetahor, Assistant Supervisor, Southwest Regional Law Enforcement Office.*

Routine patrol

I had heard many times during my training as a cadet WCO that there is no such thing as a "routine patrol." On the first day of my first field training assignment that point became abundantly clear. My field training officer and I had just left our fourth fishing pier as we worked our way downriver checking for valid fishing licenses. Thus far, I guess the day's activities could have been classified as typical. However, as I was about to discover, when using the terminology "routine patrol," one must be extremely mindful of tense as it relates to grammar. For example, you could never say with any degree of certainty, "My patrol tomorrow will be pretty much routine." You could, however, say, "My patrol yesterday was pretty much routine."

Anyway, as we drove away from that last pier, my training officer mentioned that the place we were heading was usually pretty quiet. I began to relax a bit and tried to critique myself on my performance for the day. It was now well after sunset as we approached our last stop. Suddenly, a car

pulled up behind us and flashed its high beams. We pulled our patrol vehicle to the side of the road. The car pulled alongside ours and a highly flustered young man informed us that he was the security man at the UPS building two blocks back and that someone had broken in and they were probably still inside. My training officer asked if he had called the police. The man replied he had but they could not respond for about a half-hour.

I was beginning to get the picture at this point about this "routine patrol" stuff. The training officer said, "Lead the way." With red light ablaze, we proceeded to the building. The instant our vehicle stopped, we hit the ground running and as instructed, I headed for the rear door of the building. There was a clump of small pine trees approximately 40 yards from the back door and I wasted no time becoming one with a larger specimen. With weapon drawn and trained on the door, I waited. Shortly thereafter it was determined the perpetrator had left the area before our arrival and the building was secure. From that day on, "routine patrol" was eliminated from my vocabulary.—*WCO Terence Deibler, Southcentral Region.*

On the loose

While on boat patrol of the Susquehanna River one busy Sunday afternoon with Deputy Trainee Erik Tack, we discovered a personal watercraft (PWC) floating downriver without anyone aboard. After a quick unsuccessful search of the area for a possible injured operator, we took the PWC in tow and began to search for its owner. It was then that I noticed a name stenciled across the bow that I knew well. It was the name of the chief of the local city's River Rescue. Knowing that the chief frequently anchored his pontoon boat several hundred yards upriver, we towed the PWC in that direction. Spotting a pontoon boat, we headed over to return the PWC. The chief, who had been taking a nap, was unaware that his PWC had become untied and drifted downriver. After the chief expressed his thanks for retrieving the PWC, I assured him that I would not speak a word about this to anyone. (But I didn't say anything about writing about it!)—*WCO Craig Garman, Cumberland County.*

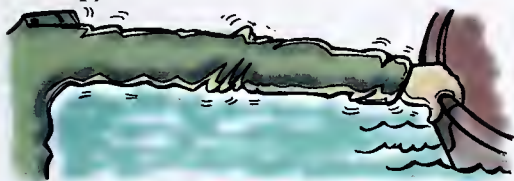
Long arm of the law

While patrolling Raystown Lake this past summer, a senior gentleman operating a

Memories To Last A Lifetime



motorboat was apprehended for committing a flagrant wake violation. Following the subsequent boarding and safety check while immediately alongside this vessel, I was about to issue the responsible party his copy of the citation. A sudden gust of



wind began to quickly separate our patrol boat from this watercraft. Leaning over our gunwale, I was just able to reach and catch his boat with my fingertips and pulled it back alongside the patrol boat. Noting this and apparently my 37-inch sleeve length, the gentleman wisely quipped to his companion, "Now that's what I call the long arm of the law!"—WCO Alan Robinson, Huntingdon County.

How quickly they learn

My husband and I took our daughter and her friend to a local amusement park this past summer. Her friend, Sarah, wanted to go on the Pirate Boat. I overheard my daughter, Caitlin, age 3, telling Sarah, "my mommy said that I cannot go on a boat without a life jacket and she didn't bring mine." I quickly explained to my daughter that this was a pretend boat and that she could go on this one without a life jacket.

It's amazing how much these children learn at such a young age. I'm glad I teach a boating and water safety program at her daycare every summer. These kids are our future anglers and boaters!—Cheryl Horning, Agency Training Officer.

No respect

After graduation last June at the Capitol, we returned to the Harrisburg headquarters. Southcentral Assistant Supervisor Guy Bowersox approached me and congratulated me on my accomplishment. While shaking my hand, he said, "Well, I guess I can't call you 'Cadet' anymore." Pausing briefly, he said, "Now it will be 'Rookie.'" Boy, it sure is hard to get any respect around here!—WCO Clyde Warner, Northeast Region.

Two different worlds

While on field training with WCO Steiner, I cited several people for various fishing and boating violations. Because

I was in training then, WCO Steiner let me take care of the paperwork. After writing out the third citation, I said to Steiner, "You wanna hear something strange? All three of the people I wrote up today live on the same road. They all lived on RD 2." Steiner chuckled and explained that "RD" meant rural delivery, which is much different from what I am used to in Philadelphia. I guess we use the urban delivery system.—WCO Erin Ryan, Southeast Region.

Blown away

Just when you think you've heard it all, you hear a better one. I was a little perplexed when a local TV reporter wanted to know what kind of testing we required for anglers to get a fishing license. The tale got stranger when I found out what prompted the questioning. A dud pipe bomb was found floating in a small lake. At a press conference, the police chief had opined that the bomber must have been trying to take fish with the device. It was I who was blown away, though, when the Mike Wallace wannabe asked me straight-faced how many blasting permits the Commission issues to anglers each year.—Dan Tredinnick, Commission Press Secretary.

Somerset County co-ops

Despite the drought of 1995 and the severe winter and flood that followed, Somerset County's co-operative nurseries still managed to have a good year producing trout. The clubs released 40,056 trout into 44 waters open to public fishing. They averaged 11.7 inches in length and .74 pounds each. The average cost for the clubs to rear a trout amounted to \$.49 each. It's impressive to think that sportsmen in just one county spent nearly \$20,000 of their own money and several thousand volunteer hours of labor to rear these fish. I hope all the co-ops statewide will continue to keep up the great job that they do to enhance our fishing.—Commissioner Donald K. Anderson.

To the rescue!

While patrolling the Susquehanna River in York County with WCO Dave Keller, we received a radio call from county communications for "any conservation officer." Responding, we were directed to the York Haven Power Plant where plant workers showed us a beaver that had become trapped on the trash rack, about 15 feet below the walkway. The current created

by the turbines was too strong for the beaver to swim away, and it was hanging on a log on the trash rack. The plant workers gave us the okay to use any equipment necessary, so we gathered a long wooden pole, rope, duct tape, and a burlap bag. We constructed a snare in hopes of getting the beaver into it. Unfortunately,



every time we got close it moved along the log, once falling into the river and almost not being able to get back on the log. Finally, a Newberry Township police officer prodded the beaver into jumping into the snare, which we were able to close perfectly around its chest, just behind the front legs. We hoisted it up to the walkway, placed it in the burlap bag, and carried it downstream of the power plant where we released it back into the river. It was last seen house-hunting near Conewago Creek.—WCO William E. Martin, southern Dauphin/Lebanon counties.

Officers locate missing livestock

During my 18 years of service as a DWCO for the Commission, I have had my share of unusual experiences while patrolling our local waters. The last Labor Day Weekend proved to be another of those unusual events. DWCO Mike Nardecchia and I were patrolling the Youghiogheny Reservoir when we were stopped by another boat near the Pennsylvania-Maryland border. They reported a cow was near the shoreline on the Fayette County side of the lake and it appeared to be unable to get up the steep hillside. We investigated and sure enough, we located a Jersey cow. We radioed the Corps of Engineers and Ranger Suzanne Glass contacted several local farmers. After a few calls, she was able to get a message to the owner. However, she later told us to watch for a horse that was missing from one of the local farms.—Commissioner Donald K. Anderson.

For many anglers, rock bass are the fish one catches by mistake when seeking black bass or walleyes. I thought that way for many years, too. But any opinion is subject to change. I was swayed when my wife, Marilyn, got hooked on rock bass fishing during a trip to Canada. Desired gamefish had acquired lock-jaw. Marilyn just wanted to have something tug on her line. The rock bass obliged. She was ecstatic. Now that we have identified some of the best rock bass waters in Pennsylvania, we eagerly look forward to late spring each year for some of the fastest fishing in the state.

Common ground

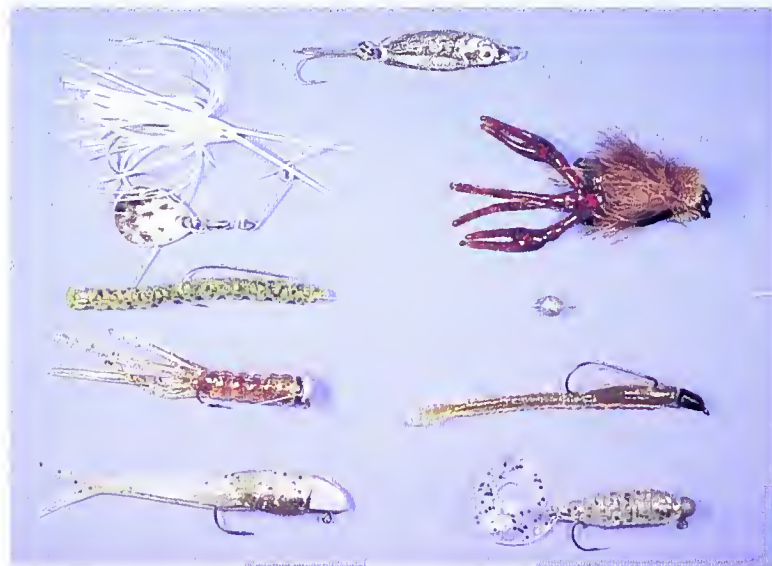
Often referred to as “rockies” by anglers, rock bass are found in all major rivers and many lakes across the Commonwealth. Rockies are not “rockfish.” Rockfish is a nickname given to striped bass. Rock bass belong to the sunfish family, a clan whose members range from tiny pumpkinseeds to heavyweight largemouths. Rockies typically reach 10 or 12 inches, with some larger specimens found in prime waters. A rock bass looks like a bluegill that has been working out with free weights. And compared to a ‘gill, the rock bass has an enormous mouth.

The rock bass is distinctively different in coloration from other small members of the sunfish family. Rockies are brassy to olive in color, lacking the splashes of bright greens, blues and oranges associated with other sunfish. Often the sides are mottled with darker brown patches, but not always. During immediate pre-spawn and spawn, the fins are noticeably edged in black.

The eye of a rock bass is conspicuously large compared to other panfish, and it’s red. These characteristics yield two more rock bass pseudonyms—“redeye” and “goggle-eye.”

Sometimes the rock bass may be confused with its lookalike cousin the warmouth. However, in Pennsylvania the warmouth is found only in a few waters of the Ohio River drainage. The two species may be distinguished by rubbing a finger on their tongues. A warmouth has a rough tooth patch; a rock bass does not. A close examination of a rockie also shows horizontal rows of tiny dots formed by a dark spot on each scale; the warmouth does not have these horizontal lines.

Anglers consider the rock bass to be a panfish, which means it fits nicely in a frying pan. However, there is nothing small about the rock bass appetite, nor anything passive about its fight.



Rock bass fishing in lakes means varying the arsenal.

ROCKIN' ROCKIES

by Darl Black



Rock bass are among the most aggressive feeders, routinely going after prey much larger than a bluegill would attempt to eat. Aquatic insects, crustaceans and small fish are included on their daily menu. Actually, it would be more appropriate to say that rock bass will eat any fish it can stuff into its mouth. Considering I have taken rockies on crankbaits over four inches long as well as on flipping jigs sporting a size 4/0 hook, that mouth can extend around some big prey!

On moderately light tackle, rock bass give a very good accounting of themselves. The term *sportfish*, as opposed to *panfish*, is perhaps more descriptive of its fighting ability. My wife has said that if rockies grew to the size of black bass, it would not be safe to wade in the water.

Where to look

Fisheries literature stresses riverine environments as the home of rockies, mentioning lakes only in passing. Rockies are actually abundant in impounded waters, too. Even though rockies seem adaptable to a wide variety of waters, their movements are restricted to specific habitats in a lake or river. In rivers, rock bass avoid the fast riffle areas, as well as soft bottoms in the slowest water. However, they are at home in rock-bottom holes, eddies and deep current runs. In lakes, rockies may inhabit the entire shoreline, or only selected sites.

A major clue where to find goggle-eyes lies in its common name. Even the scientific Latin name means “of the rocks.” If you haven’t figured it out by now, the favorite hangouts for rockies usually involve rocks—cobble bottoms, stone rubble, chunk rock, boulders and rip-rap. But don’t become so attuned to rocks that you neglect other cover.

Rockies dearly love cover. With few exceptions, it is unlikely you will observe rock bass in the open during daylight hours. In most instances the cover will be anything from fist-size rocks to boulders. But they can also be found relating to wood, including stumps, deadfalls, sunken logs, beaver lodges, brushpiles and dock posts. You can find rock bass in just about any cover where you might expect to find a largemouth or smallmouth bass.

Goggle-eyes use cover from which to ambush their prey. Do not expect to encounter rock bass chasing baitfish in open water. They rarely move three feet to grab a tempting tidbit. Instead, goggle-eyes position themselves in crevices among irregular rocks, in the shadows of boulders, under the tentacles of a stump, in a log jam or brushpile, and wait.

When food swims by or is carried to them by the current, rockies dart out, grab it and retreat. Every student of the American Revolution will recognize the analogy when I liken the behavior of rock bass to the fighting tactics of the Swamp Fox: Hit and run.

Of course, there are times when rock bass leave their fortresses of cover. During summer months, rock bass feed in the open at night. Cruising the shallows with a bright spotlight can show that rock bass are one of the most frequently observed fish on the shallow sand and rock-rubble flats. Also, in rivers and large creeks, rock bass stack up on current breaks to take advantage of the food superhighway.

Another time rock bass expose themselves is during their pre-spawn and spawn period. Rock bass spawning occurs during May and June when water temperature is between 60 and 70 degrees. This is a slightly cooler preference than other small members of the sunfish family, but it coincides exactly with black bass spawning.

Redeyes first become active when water temperature climbs into the mid-50s. Large schools congregate in deeper water before moving into the shallows. Fishing for rock bass during this period can be very exciting.

What to use

With a big mouth and a willingness to eat almost anything that moves, rock bass can be caught on a wide variety of live baits and artificial lures. Live bait choices include crayfish, hellgrammites, leeches, nightcrawlers, large fatheads and small river shiners. But for most anglers, lures are the more challenging approach.

Rock bass can be taken on jigs, worms, grubs, plugs, spoons, spinners and even surface lures. Any type of lure typically used for largemouth and smallmouth bass is a good choice for rockies. Furthermore, during the pre-spawn period the aggressive and abundant rock bass make the perfect practice fish for novice black bass anglers.

Full-size black bass lures are really too large for most rockies.

The simple solution is to downsize. Instead of a five-inch curl-tail grub, use a three-inch one. Instead of a 1/2-ounce jig with a large trailer, switch to a 1/8-ounce jig with a small trailer. Don’t expect many rock bass on a 5/8-ounce plug, but watch the number of fish go up when you tie on a 1/4-ounce diving plug. Let’s take a look at some favorite rock bass presentations.

In lakes, the first fishing peak occurs when goggle-eyes are schooling in deep water before moving shallow. Water temperature is in the low 50s. Depending on the lake, the fish may be 10 to 25 feet deep on rock-rubble flats or at the base of a breakline leading to shallower flats. Some type of rocky cover is critical. Crawling a curl-tail grub or tube lure along the bottom will take these fish.

But a vertical presentation using a 3/8-ounce jiggging spoon or blade bait will be even more effective.

As the water warms to around 60 degrees, rockies move closer to the spawning sites. Typical depth may be 4 to 14 feet of water, with water clarity a determining factor. Goggle-eyes may be on rubble flats or in remnants of last year’s weeds. The fish are extremely aggressive and appear to be feeding intensely on minnow forage. Casting curl-tail grubs, small spinnerbaits, jig-spinners, small Fin-S-Fish stickbaits, or any type of minnow-imitating lure catches loads of fish.

Redeyes remain active feeders in the shallows until the water temperature climbs to around 70 degrees. Then rockies may suddenly disappear. It seems in summer rock bass feed more on crayfish and invertebrates than baitfish. Through the summer I generally can find rockies in wood cover near deep water, on rocky slopes, or

relating to the riprap of causeways and dams. On some deep clear-water lakes, rock bass return to deep rocky flats. When the fish feed, it’s easy to catch them on crayfish-imitating jigs or four-inch worms on a leadhead. Other times a finesse presentation is required; my favorite is a soft plastic reaper or French fry on a splitshot rig.

During the summer, flowing-water rockies seem more active during the day. Perhaps they feed more often in current situations. Favorite lures for creek and river rockies include straight-shaft spinners, jig-spinners, crayfish crankbaits, hair jigs and soft-plastic critters. One of the hottest rock bass lures in recent years has been the 3-inch Hellgie from Lunker City.

Here is another interesting note on river rockies. They seem more inclined to take a small topwater lure or popping bug than lake fish. Surface feeding is most likely to occur in the evenings.

Come fall, rock bass go on a feeding spree before winter like many other species. There will be schooling activity in creeks and rivers, as well as in lakes. The full array of artificials will take fish, including jiggging spoons when the fish are on deepwater flats. By the time the water temperature drops below 50 degrees, rock bass become inactive.

Their aggressiveness, willingness to pursue lures, and spunky fight on light tackle make rock bass a fish worthy of attention. Let old redeye rock you this year.



NO PROCESSED
CHEESE BAIT
ONLY FEEL!

SMART

Angler's Notebook

by Carl Richardson

illustrated by Ted Walke



DIADROMY

No, it's not the Greek god of fishing. Diadromy might not be a Greek god, but it is from a Greek word, *dromos*—which means “running.” Fish that migrate between salt and fresh waters are called diadromous.

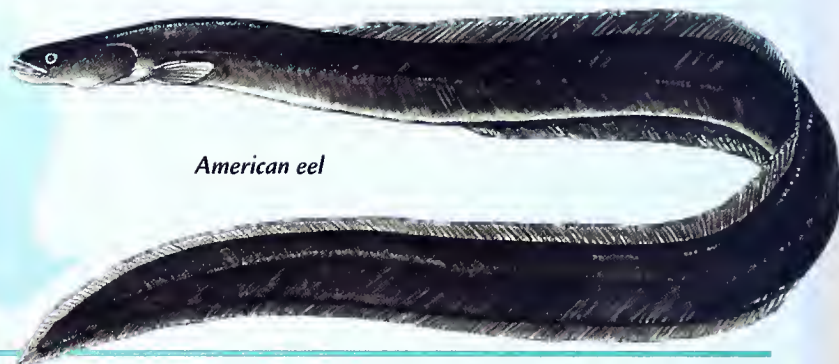
There are two kinds of diadromous fish found in Pennsylvania. They are anadromous and catadromous. The Susquehanna and Delaware rivers have runs of diadromous fish because they lead directly to salt water. The Delaware remains free of obstacles

and migrating fish can move freely. However, dams on the Susquehanna are barriers to diadromous fish migrations. Soon, though, migrating fish will be provided safe passage at all the major barriers on the Susquehanna.

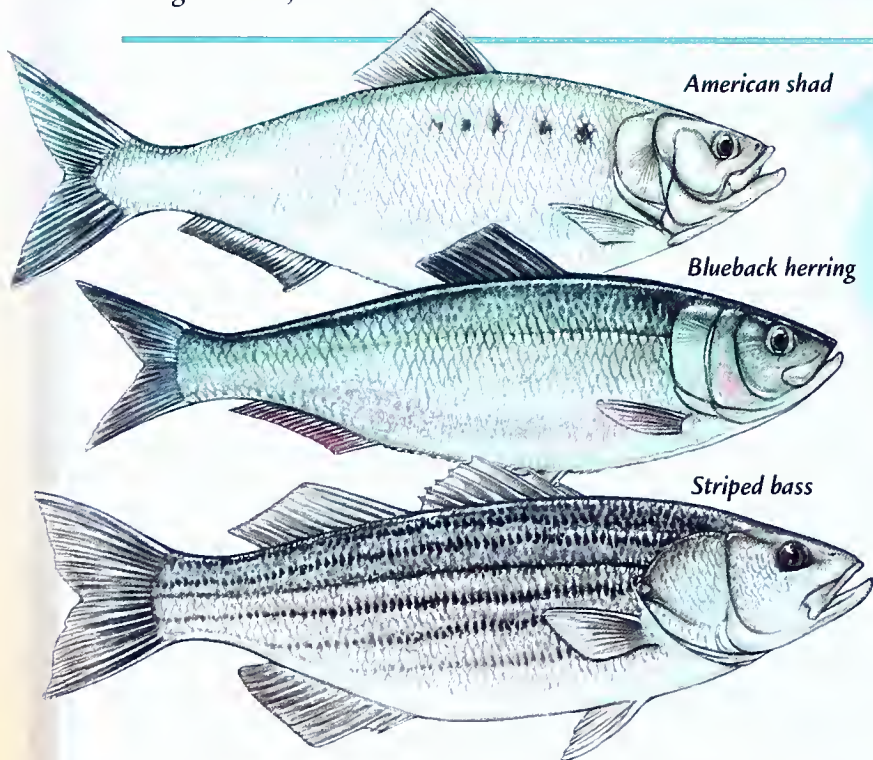


Catadromous fish

The Greek word for “down” is *cat*, so catadromous fish must “run down.” They run from fresh water to salt water to spawn. The American eel is catadromous. Eels are native to the Delaware and Susquehanna rivers. Only the female eel migrates up into the river system. The males remain in the estuary, or lower river. When mature, the females migrate down the river and join up with the males. Mature eels then make their way to the Sargasso Sea, an area in the Atlantic Ocean.



American eel



American shad

Blueback herring

Striped bass

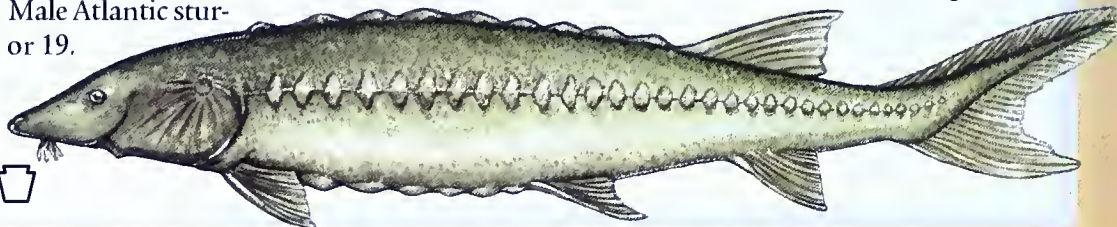
Anadromous fish

Anadromous fish run up. Anadromous fish found in Pennsylvania include American shad, herring, striped bass, and shortnose and Atlantic sturgeons. These fish also run both the Delaware and Susquehanna rivers.

After three to five years at sea, mature **American shad** return to fresh water. They make their spawning run in the spring, to the rivers where they were born. They spawn, and hang out in fresh water for a short period. Because they are adapted to eat the larger saltwater plankton, some starve to death. Some survive and return to the sea. In the fall, as water temperatures drop, the young shad head to the ocean. There they migrate up and down the coast each spring until they are three to five years old.

Striped bass mature in about two to four years. Mature stripers spawn in the lower reaches of the river systems. There, submerged grasses provide hiding places for the young stripers. After spawning, many adults migrate far up the river system. Anglers fishing the upper Delaware report catching stripers as far up as Port Jervis, New York.

Not much is known about **sturgeon** and their habits. However, it takes many years for a sturgeon to mature. Male Atlantic sturgeon mature at about age 12, females at 18 or 19. They spawn just above the saltwater and freshwater line. The young sturgeon remain in fresh water until their second to sixth years. Then they migrate out to sea.



Shortnose sturgeon

Bob Davis

The Angler's Most Loyal Subscriber? *by Terry Brady*

Mention a trout stream in Pennsylvania, and this man has fished it. Mention a fly pattern and he has tied it. Mention names of people who have brought notoriety to both, and you can bet he's probably fished with them.

Meet Bob Davis of Big Run, Jefferson County. At 83, fishing since he was old enough to tote a rod, Davis has the tales to tell. He has seen the changes, most, he says, adding value to his Golden Years. And if he's missed anything the past 77 years, traversing the state and its waterways, he knows where to turn.

Since February 1934, Davis has been a continuous subscriber to *Pennsylvania Angler*, and now *Pennsylvania Angler & Boater*, saving all issues. His allegiance actually extends a bit further, to several 1932 issues published just months after the magazine's inception in December 1931.

"I got started reading the *Angler* in my early teens," Davis recalls. "We had a sportsmen's club that always got a complimentary copy and somehow it always ended up in my hands. I made darn sure I got it."

Mom kept the home fires burning and the subscriptions coming for two years after her son traded a fishing rod for an Army carbine. In the D-Day invasion of Normandy in June 1944, her son gained the Purple Heart and lost a leg.

"I went in on the first wave, landing on Omaha Beach," says then 30-year-old Army sergeant attached to a mortar squad with the 29th Division. "I was machine-gunned by a tank and after I was hit, I layed three days before they picked me up. Lost the leg to gangrene."

A 14-month stay in an Atlanta veterans hospital introduced Davis to a lifestyle and a fishing mode that would be forever changed. It was during rehabilitation, learning how to master a wooden limb, that a hospital employee developed his fledgling interest in fly tying and fishing.

"I'll tell you, when I started tying flies, if you took all the fly tying houses where you could buy equipment, you could count them on one hand and still have fingers left," Davis says.

"When you have more people out on the



streams and something goes wrong, it is reported right away," says the co-founder of the Allegheny Mountain Chapter of Trout Unlimited, a chapter known for battling mining and lumbering abuse of waterways.

Whether he's talking about a corporate giant linked to an eroded watershed, or a dad and son leaving fast-food wrappers, the fire of empathy for all the streams he has fished burns bright in Davis' blue eyes.

"My main peeve? Has to be littering, and people building fires, just showing a total lack of respect for other people's property rights."

Major reward in pursuing and observing one sport for over 75 years? Again, answered without hesitation: "One of the biggest and the best changes I've seen over the years is people getting educated to catch and release. When I first started fishing, every fish you caught, you kept. I think many youngsters are starting to do it and that's good."

Tiring of catching fish is not something that comes easily to man who has subscribed to the *Angler* for 63 years. In its pages he has kept abreast of conservation issues and discovered new fly tying techniques.

He has been inspired by fiery, eloquent words of the late Ralph W. Abele, his favorite executive director of the then Fish Commission. He's laughed and reminisced with his favorite editor, the late Charles Fox.

And he's kept track of the exploits of his prominent fishing buddies, George Harvey, Joe Humphreys and Charles Meck, to name a few. Some have repaid the favor:

"The East Branch of Mahoning Creek saw one of its first fly fishermen in 1928. A hefty brook trout struck a Silver Doctor wet fly....Bob Davis of Big Run caught that trout more than 60 years ago."

So begins a passage in Charles Meck's *Pennsylvania Trout Streams and Their Hatches*. It concludes by telling readers Davis is a fixture on that stream, and, if they meet him, "thank him for his perseverance in keeping the East Branch of the Mahoning clear and productive."

A mild stroke, a few heart attacks and the loss of sight in one eye in recent years have left the former miner, tree surgeon and landscaper "slowing down just a bit." But the lifelong bachelor usually can be found in the clapboard home where he was born.

The local kids know it. It's the home where the man ties all the flies, knows the area waters, and is free with advice. He gives freely of something else—you know it when he talks of his fly tying operation.

"Up until I lost sight in the one eye, I'd tie about 300 dozen every winter and then probably sell, no, not really sell, I think I gave most of them away."

"You see, I have kids stopping in here all the time, wanting to buy flies. Usually they have a dollar."

"Take some of these along and tell your son to try them the next time you are fishing Penns Creek together," he told me as our conversation closed on that warm December day. "They work all the time—they'd work today."

"I used to drive down and fish the special regulations area of Penns Creek two or three times a week. I'd get under the trees with these cork ants that I make. And those big old trees would be filled with ants, and the trout would all be there...just waiting."

I gave the cork ants, and passed along their tale, to a young fly fisherman, 69 years Davis' junior. Less than two weeks before Christmas, I wished I could have passed on something else between the two. It was the spirit that danced in the eyes of the giver. □

Bob Davis died February 15, 1997, while this article was in production. Author Terry Brady conducted the interview and took photographs last December. The personality feature Brady so ably created has now become a fitting tribute.

Recap of 1996 Pennsylvania Fatal Boating Accidents *by Dan Martin*

1. One fatality, Loyalsock Creek, Lycoming County, 2/24/96, 9:30 a.m., Saturday.

A 71-year-old man lost his life when the 12-foot rowboat in which he was a passenger capsized. Two men visited their camp to clean up after a recent flood. While they were at the camp, the water began to rise. They used a small, flat-bottomed rowboat at the camp to cross the creek. They quartered across the stream, struck flooded timber near the opposite bank and capsized. Both men were thrown into the water. The victim was last seen by the surviving rower, hanging onto the capsized boat 150 yards downstream, entering a severe rapid. The victim's body was recovered on April 6. No PFDs were onboard. The water was very cold, so hypothermia and sudden immersion into cold water were factors. The victim was a poor swimmer and had no formal instruction in boating safety. The boat operator had a great deal of experience rowing this and other small boats.

2. One fatality, Allegheny River, Warren County, 5/25/96, 3:15 p.m., Saturday.

A 33-year-old man lost his life when the 17-foot rented canoe he was paddling capsized. They were issued wearable PFDs with the boat but chose not to wear them. The paddlers hit a log and capsized above a tree that was down in the water (strainer). The victim held onto the canoe, but the canoe with the man became wedged in the strainer. The force of the water held him under. The survivor held onto a log above the strainer. She was rescued by a boater in the area who was in a jet boat. The victim's body was later recovered by the same boater. The water temperature was 42 degrees, so hypothermia was a factor. The victim was a poor swimmer, had some boating experience and had no formal instruction in boating safety.

3. One fatality, Susquehanna River, Wyoming County, 7/7/96, 8:00 a.m., Sunday.

A 33-year-old fisherman lost his life when he capsized his 10-foot open motorboat. A witness said that he saw the victim having trouble getting his motor started. Once started, the victim went upstream into the fast water. Another person reported that he saw the victim anchored in the fast water.

A third witness saw him yelling for help before going under. The river was very high for the time of year with strong current. It is unknown why the victim's boat capsized. However, a 10-foot johnboat capsizes easily. The anchor line was tied to the transom, which may have caused the boat to flood and capsize in the strong current. Though the victim was a good swimmer, he was not wearing the life jacket he had onboard and had no formal instruction in boating safety. It is unknown if the victim had much boating experience. His body was recovered by divers the next day.

4. One fatality, Youghiogheny River, Fayette County, 7/9/96, 2:45 p.m., Tuesday.

A 17-year-old woman lost her life while whitewater rafting when she fell overboard from the 13-foot raft she was helping to paddle. There was no guide onboard the raft when it hit dimple rock. All six people on board were thrown out of the raft. The victim was wearing a Type V whitewater rafting PFD and was apparently entrapped on the stream bottom or under dimple rock. A few minutes after the mishap the lifejacket worn by the victim surfaced, still buckled properly. At 4:30 p.m. the victim's body was seen coming to the surface. The search for the victim continued until dark with no success. At 8:10 a.m. the next day the body was recovered about 300 yards downstream. The victim was a poor swimmer. It is unknown whether the victim had any boating experience or formal instruction in boating safety.

5. One fatality, Conneaut Lake, Crawford County, 8/19/96, 10:50 p.m., Monday.

A 41-year-old fisherman lost his life while fishing in a 17-foot open motorboat when he was struck by the propeller from a 19-foot open motorboat. The victim was fishing on the lake when a ski boat with a 15-year-old operator approached. The victim may not have been displaying navigation lights. One possible scenario is that the fisherman, seeing the other boat approach, switched on his lights and jumped into the water. He was a strong swimmer. He was struck by the other boat's propeller as it passed. The victim was conscious when he was pulled from the water by the

teenagers on the ski boat. EMTs were waiting on shore. Unfortunately, the fisherman did not survive. The operator of the ski boat had taken a safe boating course and had some boating experience. The victim was an experienced boater, but it is unknown if he had any formal instruction in boating safety.

6. One fatality, Paupacken Lake, Wayne County, 8/23/96, 2:00 p.m., Friday.

A 74-year-old fisherman lost his life when he apparently fell overboard from a 12-foot open motorboat. The victim was fishing with his boat at anchor. His boat was found floating upright against the shore of the lake with all equipment still on board. His body was found the following day, fully clothed with his wallet in his pants and his glasses still in place. He was not wearing a life jacket; it was found floating on the surface near his boat. There were no witnesses to the accident. Sudden immersion into the relatively cool water may have contributed to this fatality because the victim was a good swimmer. It is unknown why the victim fell overboard but it may have happened immediately following retrieval of the boat's anchor. The victim was an experienced boater but had no formal instruction in boating safety.

7. One fatality, private farm pond, Bucks County, 8/28/96, 11:05 a.m., Wednesday.

A 44-year-old fisherman lost his life when his 15-foot aluminum canoe capsized. The victim was fishing with his brother and son from the shoreline of a pond. The victim's brother decided to paddle a canoe out to retrieve a bobber that had broken off and was floating out of reach in the pond. The paddler immediately capsized the canoe. The victim, who could swim, saw his brother struggling in the water so he took another canoe out on the pond to assist. He, too, capsized and went into the water with his brother. Unable to hold on, the would-be rescuer disappeared beneath the surface. The victim's 11-year-old son then grabbed a PFD, paddled out in a kayak and pushed his uncle, a nonswimmer, to shore. The victim's body was recovered an hour later. No PFDs were onboard either of the canoes. Alcohol may have been a factor. It is unknown if the victim had any boating experience or formal instruction in boating safety.



Dan Martin is the Commission Boating Safety Program Manager.

13 *Do's and Don'ts* for Early Season Trout Fishing *by Walt Young*

The opening of trout season is a magical and long-awaited time throughout Pennsylvania for thousands of eager anglers who venture forth to participate in this annual rite of spring. For some, it is a time of renewal to exercise the skills honed from years of experience on the stream. For others, months of anticipation quickly turn to frustration as their efforts on the water go largely unrewarded.

Trout fishing has reached its current level of popularity because it is not exceptionally difficult. Armed with some basic knowledge, even anglers of limited experience should be able to catch trout regularly. The following list of "do's and don'ts" are a few examples of the little things that anyone who wants to catch more trout should think about.

1. Don't hesitate to try new or different tactics. Trout anglers tend to be "specialists." They have one or two preferred methods, baits, lures, and even fishing spots, and they stay with these favorites almost exclusively, whether they are producing or not. Those anglers who catch trout consistently also have their preferred methods, but they don't hesitate to switch if the fish are not cooperating.

The first few weeks of the season can require anglers to adjust their tactics more than any other time of the year. Weather and water conditions can vary greatly from one day to another. Fishing pressure is also highest this time of year. These and other factors require the early season angler to be more versatile. On those days when the action is slow, take time to evaluate fishing strategy. If your approach has been largely one-dimensional, think about making some changes.

2. Do pay attention to water temperature. Because trout are cold-blooded creatures, their metabolism is directly affected by the temperature of the water they live in. The colder the water, the slower their body functions become, causing the fish to become less active and feed less frequently.

When faced with lower water temperatures, knowledgeable anglers adjust their tactics accordingly. Bait and lures must be presented slower and deeper. The trout are less inclined to move far to take any offering, so a given section of water needs to be covered more thoroughly.

In general, 50 degrees is the magic number for trout activity. Once the water reaches this mark, trout begin to establish their regular feeding patterns. Even in this preferred range, a cold snap that plummets the water temperature several degrees lower than it had been can affect the fishing dramatically. In this situation, reverting to a slower, more methodical presentation can bring success.

3. Don't quit too soon. Early in the season, enthusiasm runs high, and anglers seem driven to be on the stream as early as possible each morning. As inviting as it is to be on a trout stream at dawn any time of the year, too many early bird anglers burn out and end their outing early and sometimes miss the best fishing of the day.

As the crowds thin in the afternoon, good spots that were lined with anglers in the morning may now be nearly deserted. Trout

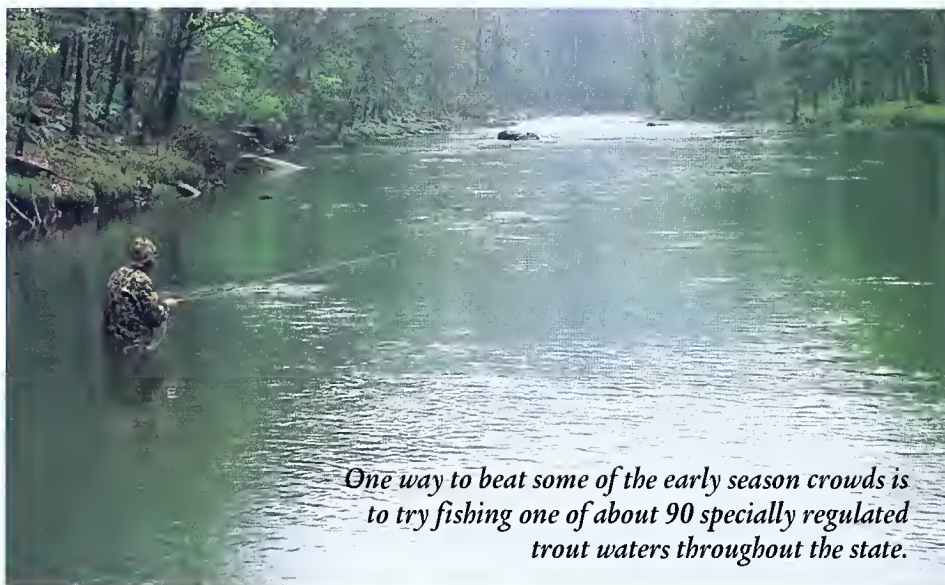


Trout fishing has reached its current level of popularity because it is not very difficult. Armed with some basic knowledge, even anglers of limited experience should be able to catch trout regularly.

13 *Do's and Don'ts* for Early Season Trout Fishing

that were shell-shocked from the early morning bombardment become more inclined to feed as the fishing pressure wanes. Early in the season water temperatures tend to reach their peak in late afternoon, and this often spurs the fish into a feeding mood.

4. Don't be afraid to fish the tough places. Ever wonder why a select handful of anglers always manages to catch more trout than everybody else? Often it's because they are willing and able to fish spots that the average fisherman ignores. Once the season opens, it doesn't take long for most of the "easy" trout to disappear. They either end up in the creel or become educated enough to avoid the offerings of most anglers. A lot of the trout that remain do so by taking up residence in logjams, undercut banks, heavy pocket water, and other places that thwart the ef-



One way to beat some of the early season crowds is to try fishing one of about 90 specially regulated trout waters throughout the state.

forts of the less experienced fisherman. The only way to learn how to deal with these inhospitable places is by paying your dues. Expect to lose a lot of hooks and lures, especially at first. With a little practice and dedication you could join that elite group that understands that the tough places are often the best places to catch more trout.

5. Don't ignore fluorescent colors. Trout have a reputation for being finicky and selective feeders. There are, however, plenty of times when they are tempted by bright, fluorescent-colored lures or bait and ignore more conventional offerings. Why a trout abandons its usual cautious nature to hit something so unnatural is probably caused more by anger, fear, or curiosity than hunger.

Fluorescent colors are especially good in the off-colored or dirty water conditions frequently encountered early in the season. Vibrant colors have the ability to be seen when murky water limits the trout's visibility. In clearer water, fluorescent colors are most effective during periods of low light, such as dawn, dusk and heavy overcast.

Most kinds of spinners, spoons and other small lures are readily available in fluorescent colors. Prepared baits like salmon eggs and the popular moldable dough baits come in bright colors, too. Brown trout seem to favor chartreuse or orange, and rainbows are often fond of red or pink.

6. Don't use lures or baits that are too big for clear water. The typical early season trout stream often runs full from spring rains. In high water, crayfish, sculpins, big stonefly nymphs, and other large prey are regularly swept into the heavy currents. Trout eagerly gobble up these larger food items without hesitation.

During drier periods, however, the heavy flows quickly subside, and so does the steady supply of bigger food. Now, most of the nymphs, larvae, and other organisms that comprise the bulk of a trout's diet are considerably smaller than so many of the baits and lures anglers commonly fish with. Knowledgeable anglers confronted with low, clear water should adjust their tactics by down-sizing their lures or bait.

7. Don't be in a hurry to get out of the rain. One of fishing's oldest maxims is that fish bite better when it rains. This belief has persisted for generations largely because it is so often true. A spring rain can be a special opportunity for trout fishermen.

Raindrops hitting the water's surface help the angler approach his quarry undetected. Insects and other food are washed into the stream in great numbers. As the water begins to take on a little color, even the wildest trout tend to lose much of their caution and go on a feeding spree.

It's not advisable to attempt to fish during a thunderstorm or on larger streams when rising water makes wading unsafe. But for those willing to put on the rain gear and risk getting a little damp, the results can be worth the inconvenience.

8. Do try special regulation areas. One way to beat some of the early season crowds is to try fishing one of about 90 specially regulated trout waters throughout the state. These streams or sections of streams managed as Heritage Trout Streams, Catch and Release, Trophy Trout, Selective Harvest, or Delayed Harvest are highly popular with dedicated trout anglers, but most specially regu-

lated streams and stream sections do not experience the amount of pressure that other streams do early on. All of these areas are either completely catch-and-release fishing or allow only two or three fish to be kept per day.

Especially inviting are the more than 60 Delayed-Harvest areas. All of these projects are well-stocked with trout before the season opens, but no fish may be kept until June 15. This gives the angler who enjoys catch-and-release fishing two months or more of fishing over good numbers of trout. For a complete listing of all Delayed-Harvest and other special regulation trout waters, consult the *Summary of Fishing Regulations and Laws* supplied with your fishing license.

9. Do sharpen your hooks. Whether you fish with bait, lures or flies, your most important piece of tackle is the hook, and the second most important item should be your hook hone. A dull hook practically guarantees missed strikes and lost fish. Most

new hooks leave a lot to be desired when it comes to sharpness, and they should be honed before use.

Even the so-called chemically sharpened hooks still require some attention. Even though these expensive hooks are extremely sharp right out of the box, rocks, logs, and other nasty things on the bottom of a trout stream can dull them as quickly as any other hook. Check your hook point for sharpness



frequently and touch up or replace any hook that is not needle-sharp. This applies to the treble hooks installed on most lures as well.

To test a hook's sharpness, hold the point perpendicular to your thumbnail and drag the point lightly over the nail. A properly sharpened hook grabs the nail as you pull it across.

10. Do change your line often. Trying to get as much service as possible from the line on your spinning or spin-cast reel is an exercise in false economy. Monofilament line does not improve with age. It can become weaker along with developing flat spots, kinks and abrasion from continued use. All these can contribute to the unnecessary loss of terminal tackle and lures or, worse yet, a big fish.

New line should be installed at the beginning of each season. If you fish an average of two days a week, it's a good idea to change line at least once a month during the season. Those who get out more often should also change their line more frequently. The small cost and time involved will pay big rewards on the water.

A reel properly spooled with fresh line also casts better. For optimum performance, the reel spool should be filled to within an eighth to a sixteenth of an inch from the edge. Whenever the amount of line left on the spool gets noticeably below this, it's time to refill the spool.

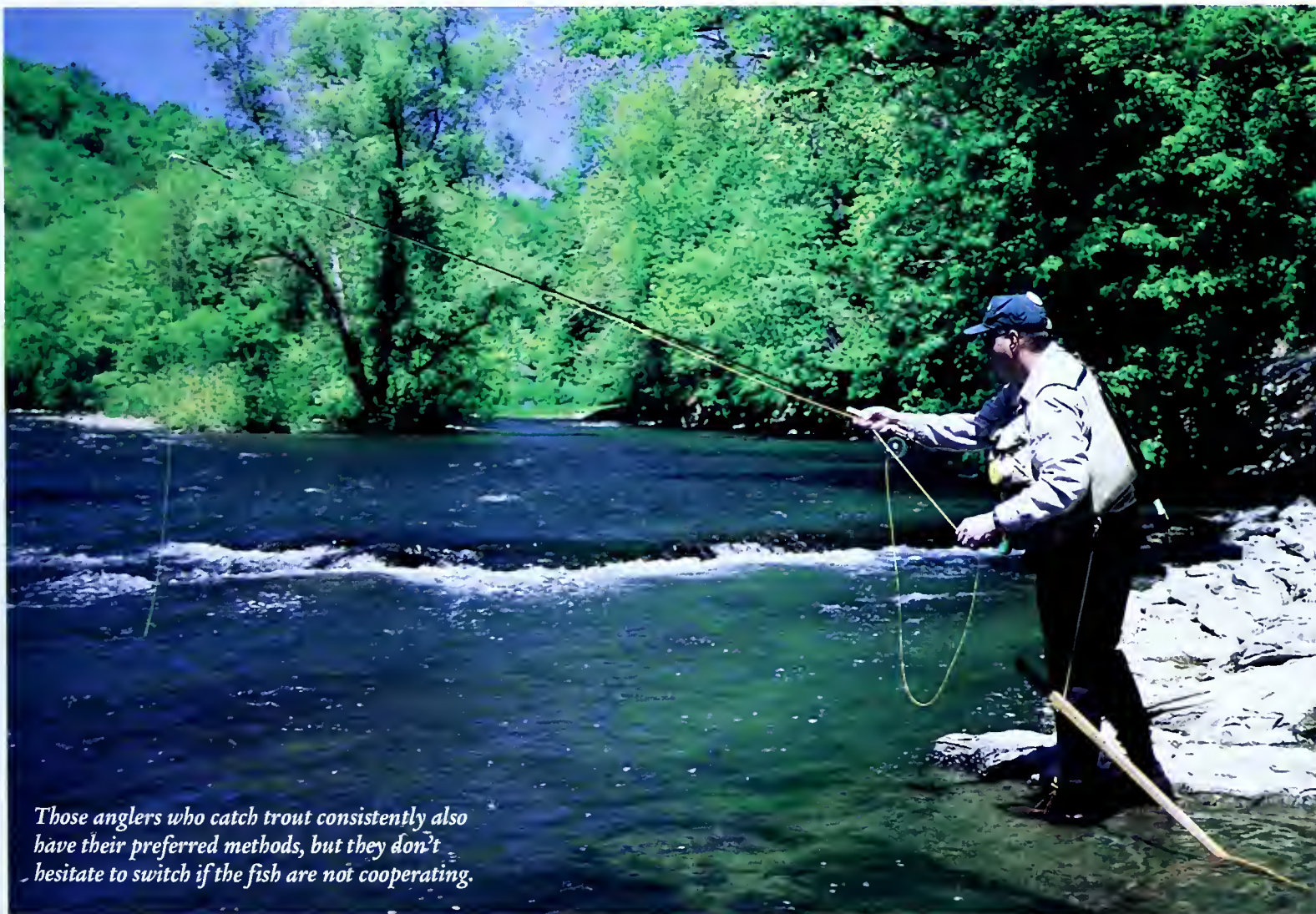
11. Do practice catch and release. Recycling has become an important mechanism in conserving resources and protecting the environment. As anglers, we have the ability to recycle, that is, release, some or all of our catch and thereby maintain the quality of our fishing.

The decision to release a fish is a matter of personal choice. There is certainly nothing wrong with taking a few trout for the table now and then if you like them. But each year as fishing pressure increases on so many of our streams, more and more anglers embrace the wisdom of putting fish back to be caught another day.

12. Do respect private property. In Pennsylvania we are fortunate to have so many miles of accessible trout streams. Even though many of them are on public land, the majority of our trout streams flow through private property and are left open to fishing by the owner. Without the cooperation of these gracious landowners, the opportunities for trout fishing would be greatly diminished.

Littering, building fires, damaging fences, and driving on fields are all senseless and inexcusable, yet they are among the most common reasons landowners post their property. The best way to keep "No Trespassing" signs from showing up on your favorite trout stream is always to remember you are a guest there and act accordingly. It also doesn't hurt to stop, introduce yourself, and tell the landowner you appreciate being able to fish on his property.

13. Do treat fellow anglers with courtesy. During the first week or so of trout season, crowded conditions are the standard situation on many trout streams. Then, it's fish close to others or don't fish. Later, as the crowds dwindle, most of us expect to have a little more water to ourselves. It's also the time to think about stream etiquette. Good manners on the stream can be contagious. If you give another angler plenty of room, he will likely afford you the same courtesy.



Those anglers who catch trout consistently also have their preferred methods, but they don't hesitate to switch if the fish are not cooperating.

Cast & Caught



Jim Grosjean, West View, caught and released this largemouth bass while fishing in Lake Wilhelm, Mercer County. The fish weighed 6 pounds and measured 23 inches in length. Nice going, Jim!



Natrona Heights resident Anthony Aulicino earned a Senior Angler Award for this smallmouth bass. The Lake Erie fish measured 20 1/2 inches in length and weighed 5 pounds, 2 ounces.



Jason Steiner, Hatboro, was fishing the Delaware River in Bucks County when he caught this American shad. The fish was 22 1/4 inches long and weighed 5 pounds, 2 ounces.



Joseph Martines, Southampton, caught this 29 1/2-inch, 9-pound, 6-ounce walleye from Lake Nockamixon.



Blaine Hertzog, Bethlehem, earned a Senior Angler Award for this Beltzville Lake brown trout. The fish, caught on a minnow, weighed 11 pounds, 7 ounces and measured 30 1/2 inches long.



Jonathan Greathouse earned a Junior Angler's Award for catching this 8-pound, 7-ounce drum in the Ohio River. The fish measured 27 inches long.



David L. Hoyt, Coopersburg, shows off the 26-inch, 6-pound channel catfish he caught in Lake Nockamixon. The catfish grabbed a minnow. Hoyt released the fish after this picture was taken.

Memories To Last A Lifetime



Chris Fry, Millerstown, hooked this 35-inch carp while fishing the Juniata River. The fish, caught on a worm, weighed 25 pounds.



Masury resident Gerald Fischer caught this muskellunge while fishing near the Shenango River Dam, Mercer County. The fish weighed 38 pounds, 3/4 ounces and was 53 1/2 inches long.



Donald Shade, Waynesboro, poses with the smallmouth bass that earned him a Senior Angler Award. The fish, which he caught in Meadow Grounds Lake, Fulton County, weighed 5 pounds and measured 23 inches long.



Amanda LeFure was fishing on Lake Arthur when she hooked this striped bass. The fish weighed 4 pounds, 8 ounces.



Eric Kraus, Verona, hefts the 7-pound, 5-ounce, 24-inch smallmouth bass he caught in the Allegheny River. The bass took a shiner. Kraus's smallmouth bass is only 5 ounces under the current state record of 7 pounds, 10 ounces.



Timothy Manning caught and released this largemouth bass while fishing in Nockamixon Lake last spring. The fish weighed 6 pounds and was 21 inches long. Nice job, Tim!



Collegeville resident Paul Marchese caught these golden rainbow trout while fishing Skippack Creek on opening day. The smaller fish measured 16 1/2 inches long; the larger fish was 22 1/2 inches long.



Lauren Sinclair, State College, used a waxworm to convince this rainbow trout to strike. The fish, which she caught in Stone Valley Lake, weighed 5 1/2 pounds and measured 25 inches in length.



Charles Weber hooked this brown trout while fishing in Loyalsock Creek last April. The fish was 22 inches long and weighed 4 pounds.

Anglers Currents



Last fall, WCOs Jim Stout (left center) and Larry Bundy (right center) received a Governor's Safety Award. The award commends the Commission's co-sponsoring of the annual DUI/BUI Safe Boating Days at Lake Winola and Harveys Lake, in Luzerne and Wyoming counties. The award also mentions the officers' "superior enforcement of not only the waterways but also the roadways surrounding the lakes and the Susquehanna River." Presenting the award were Bradley L. Mallory (right), Secretary of the PA Department of Transportation, and Eugene Peterson (left), Region III Administrator for the National Highway Traffic Safety Administration. WCO Stout is assigned to northern Luzerne County. WCO Bundy is assigned to eastern Sullivan/Wyoming counties.

Coast Guard Auxiliarist Passes Away

Gerald S. "Jerry" Simmons died last fall following a short illness.

Jerry joined the Auxiliary May 17, 1987, and in nine short years became a driving force in the group. In 1994 alone, Jerry gave 30 Courtesy Marine Examinations (CMEs); did 295 hours in patrols, 36 of these hours as skipper; aided in 8 assists and assisted 32 people; traveled 88 hours; and spent 26 hours on 5 public appearances.

He had also held several offices while in the Auxiliary. He was the Flotilla Commander for Flotilla 09/07/02ER for 3 years; Division Captain for Division IX 02ER in 1994-95; US Coast Guard Auxiliary Liaison Officer for the state of Pennsylvania; the Division Nine Representative on the Pittsburgh (Three Rivers) Safe Boating Committee; and the US Coast Guard Auxiliary representative for the 1996 National Association of State Boating Law Administrators conference held in Pittsburgh.

Jerry was also the recipient of many awards through the Auxiliary and the Pennsylvania Fish and Boat Commission. He was the top individual for outstanding contribution to the Aids To Navigation (ATON) program for the 2nd Eastern Region for 1994; he received two Meritorious Team Commendation awards from the US Coast Guard; and he achieved Coxswain, the highest level in the US Coast Guard Boat Crew Qualification program. From the Commission, he received awards for the top Auxiliarist in number of patrols and received the Overall Top Auxiliarist award in 1992 and 1994.

Jerry was a great man who believed in keeping the waters of Pennsylvania safe for all boaters. He was a friend to the Fish and Boat Commission and he will be greatly missed.

Penn State Conservation Leadership School

Instead of desks and blackboards, the classrooms at Penn State's Conservation Leadership School this summer will include an underground cave, canoes and sailboats on a 72-acre lake and green leaves and shade on 700 acres of forested land.

In this unique setting at the University's Stone Valley Recreation Area near State College, secondary school students between the ages of 15 and 18 will learn about conservation during two-week programs that emphasize field-based, hands-on learning, group problem solving and environmental management planning.

The curriculum involves active participation in environmental management, resource assessment, and regenerative conservation methods. Topics include watershed management, citizen action, basic ecology, land-use planning, alternative energy supplies, environmental risk assessment and forest management.

Students provide their own transportation to the Stone Valley Recreation Area, where they stay in four-person platform tents with cots. Also available are heated shower and restroom facilities, complete meal service and all educational needs. The \$440 tuition (\$495 for non-Pennsylvania residents) covers tuition and all other costs for the student's two-week stay.

The 1997 Conservation Leadership Schools dates are: Session I, June 29 to July 12; Session II, July 13 to 26; and Advanced Session, August 13 to 26. The Advanced Session is open only to students who previously attended a regular session.

To register by phone or for more information, call 1-800-PSU-TODAY (1-800-778-8632), or visit <http://www.cde.psu.edu/C&I/ConservationLS.html> to see our WWW page.

Fairview Fish Culture Station Named Tops in State

The Fairview Fish Culture Station in Erie County was named the top Pennsylvania Fish and Boat Commission hatchery for 1996. Every year, the Commission Bureau of Fisheries conducts a comprehensive inspection of its 14 fish culture stations. Each facility is rated on its fish, rearing areas, equipment, records, vehicles and the interior and exterior of all buildings. For each category, the inspectors rate 10 specific areas on a score of 1 (poor) to 4 (exceeds expectations). The maximum score for each category is 40; the maximum total score is 320. Fairview, which primarily raises steelhead and coho salmon for use in Lake Erie, earned 250 points.

Bellefonte Fish Culture Station in Centre County was named the agency's most improved hatchery. The Bellefonte station raises trout.

The Fish and Boat Commission's hatchery system is one of the largest in the world. Each year the Commission stocks more than 100 million warmwater fish species such as muskellunge and bass. The agency also annually stocks more than 5 million adult trout in more than 800 streams.

Remember: Fish-for-Free Days in 1997 will be June 7 and September 27.

Prototype Side-Stream Oxygen Injection System



Bob Wilberding (right), Pleasant Gap Fish Culture Station Manager, and Clyde Welsh, assistant manager, inspect the Commission's prototype side-stream oxygen injection system. The system, made by Apogee Technology, Inc., Verona, PA, mixes pure oxygen with water under pressure and injects it into the upper ends of a raceway. This procedure enhances the delivery of oxygen into the water. The Commission is experimenting with the prototype and evaluating the system, which may replace the Commission's mechanical hatchery aeration systems. Ultimately the new device could save the Commission money.

Photo: Art Michaels

TAKE A FRIEND FISHING



NATIONAL FISHING WEEK JUNE 2-8, 1997

For more information on National Fishing Week write to: National Fishing Week Steering Committee, 1033 North Fairfax Street, Suite 200, Alexandria, VA 22314-1540 or call (703) 684-3201



The mission of the Pennsylvania Fish & Boat Commission is to provide fishing and boating opportunities through the protection and management of aquatic resources.

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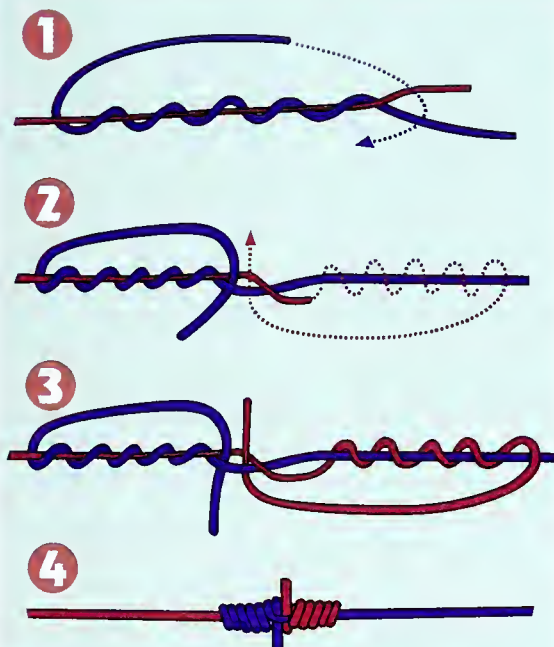
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Angler's Notebook by Seth Cassell



The blood knot is useful for all anglers. It joins monofilament strands smoothly, and it's strong, maintaining more than 90 percent of the unknotted breaking strength. Use the blood knot to join different-strength mono to make fly leaders, and to add more line to a leader. First, wrap both ends of the line about six or seven times around each other (step 1-2). Then lock the tag ends as shown in step 3. Pull the connection tight and trim the tag ends close to the knot (step 4).

When fishing for largemouth bass, don't shy away from areas choked with aquatic vegetation. These areas are often where bucketmouths like to hang out, especially during the daytime. Tie on a weedless topwater lure and slowly work it across the surface, pausing the retrieve near structure and open pockets of water.

Some of the best topwater trout action occurs around dusk, especially after late May. Don't get stuck in the dark, though; always remember to bring a flashlight. It will help you tie knots, search your fly box, unhook fish and find your way safely back to the shoreline.

A soft-hackle wet fly is one of the most versatile flies around. It can be used to represent small aquatic creatures including emerging mayflies, caddis pupae, stonefly nymphs and even some minnows. Try fishing them dead-drift or with the across-and-down method.

When a bass strikes a topwater lure, refrain from setting the hook immediately. Instead, pause for a quick moment, and then strike. This allows the fish time to get a better grip on the lure to allow for a better hookset.

When fishing for crappies, perch and sunfish in clouded water, try using a small trout spinner. The vibration caused by the lure moving through the water and its inherent luster often attracts these scrappy feeders. Work the spinner near docks, stumps, windfalls and other submerged structure.

Crappies aren't known as "paper-mouths" for nothing. The tissue surrounding their mouths is extremely thin, and a hook will often tear out if too much force is exerted. When you hook a crappie, play it lightly; don't force it in. It also helps if you're using a light, fast-action rod with the reel's drag set low.

When river fishing for smallmouth bass, a good place to try is the downstream end of an island. The current that merges in such locations brings with it a good supply of food that bronzebacks waste no time finding. Try dead-drifting a topwater lure or working a crankbait with the current. Be ready for fast and furious hits.

illustration: Ted Walke

Tide of Boat Registrations Keeps Rising

Boat registrations in Pennsylvania reached a record level in 1996, easily surging past the mark set just one year earlier. A total of 337,201 watercraft were registered in the Commonwealth last year, according to the Pennsylvania Fish and Boat Commission, the state agency in charge of the registration program.

The former high-water level for registered watercraft was 1995's total of 330,440. The growth comes as no real surprise. For the last two decades, registrations have increased each year, with the exception of 1993. In recent years, the tide of boats has risen like a tidal wave; just 10 years ago, a mere 250,586 boats were registered. Much of this most recent registration growth has been fueled by small, powerful motorboats officially called personal watercraft, but better known by brand names such as WaveRunner, SeaDoo and Jet Ski. In 1996, there were 18,575 active PWC registrations, an increase of some 20 percent over the number in 1995.

Allegheny County led the state with 29,955 registered boats. Bucks County boasted the second highest individual county with 16,061. Luzerne came in third with 12,668, with York right behind at 12,435.

The southcentral and southeastern portions of the Commonwealth accounted for the areas with the greatest growth. Lancaster County added an additional 462 watercraft, the largest jump for a single county. Lancaster County had the most new registrations in 1995 as well. York County, which provided the third most new registrations in 1995, moved into the second spot in 1996 by adding 357 new registrations last year. Large growth was also seen in Chester County (+319), Erie County (+273), Berks County (+231), Bucks County (+212) and Dauphin County (+203).

—Dan Tredinnick.

New Adopt-an-Access Program

Those interested in keeping Pennsylvania beautiful now have another way to do so by "adopting" a fishing and boating access. Through a new Pennsylvania Fish and Boat Commission program, dubbed "Adopt-an-Access," volunteers can team with the agency to become caretakers along the state's streams, rivers and lakes.

The Commission owns or operates some 300 sites that provide free access to waterways for public fishing and boating. Through the Adopt-an-Access program, interested individuals and groups can assist with routine maintenance and litter removal at these sites. As well as providing clean, well-groomed areas for anglers, boaters and visitors, the program also serves to raise the awareness levels of participants about litter problems. Adopting individuals and groups would sign a commitment to pick up trash, mow and/or remove snow at an approved access for a two-year period. The Commission would provide trash bags, gloves and postcards for reporting purposes. A permanent sign would be posted at each adopted site recognizing the caretakers for their efforts.

Sportsmen have a long history of working to keep the environment clean, knowing such efforts pay dividends for both our natural resources and, in the long run, themselves.

"Clean-up work obviously helps preserve

the sites for public use, but more importantly, it protects opportunities for recreation on the water. These are key goals of the Fish and Boat Commission," says Richard Mulfinger, Chief of the Commission's Fishing & Boating Facilities Design Section. Mulfinger points out that the benefits from access adoption are two-fold. First, the adopted access itself benefits from the volunteer work. Second, funds and labor previously tied up in routine maintenance of that access can be applied to other worthwhile Commission projects.

"For example," Mulfinger says, "the Commission has contracted maintenance for 12 areas. If we can get an Adopt-an-Access volunteer to take on these areas, it would mean instant savings. That's money that can be used elsewhere to benefit anglers and boaters."

Participants in the program must be at least 18 years old. Participants under 18 must be accompanied by adults. Only Pennsylvania Fish and Boat Commission access areas are included in this program, and adopting groups and individuals must sign an agreement with the Commission. The Commission would post a sign naming the adopting group, but no business logo or commercial advertising would be used.

For more information and for an Adopt-an-Access application, call Lori Brindel at (814) 359-5152.—Dan Tredinnick.

Two WCOs Receive Life-Saving Awards

WCOs Edward Brown (Clearfield County district) and Scott Reichert (east Philadelphia district) recently received Commission life-saving awards. Last July, WCO Ed Brown was directed to respond to the Brookville area because of serious flooding. After arriving in the area he was made aware of a family that was trapped in their home by rising water. The home began to move from its foundation. WCO Brown immediately launched his patrol boat into the floodwaters and rescued the family of four from the second story of their home.



WCO Edward Brown

Also last July, WCO Scott Reichert assisted an off-duty Philadelphia police officer with a stopped vehicle. WCO Reichert determined that the driver was locked in the cab of the vehicle, which was on fire. Reichert removed the emotionally disturbed driver from the burning vehicle and held him until more help arrived. The driver was attempting suicide when WCO Reichert intervened.



WCO Scott Reichert

Walleye and muskie opening date is May 3rd. Bass is June 14th. Go get 'em.

Anglers Currents

Artists Invited to Enter Trout Stamp Contest

The Pennsylvania Fish and Boat Commission is seeking artists to submit works featuring one of the state's most scenic trout streams. Entries will be judged by an expert panel, with the top selection depicted on the 1998 Trout/Salmon Stamp and Print.

The contest is an annual event, drawing artisans from throughout the nation. The winning image is reproduced as a stamp, serving as a permit required of all licensed trout anglers. Special-edition art prints depicting the top entry are also issued. The winning artist will receive payments of \$3,000 as well as fees for signed prints, stamps and mini-prints. The original work becomes the property of the Pennsylvania Fish and Boat Commission.

Second- and third-place winners will be awarded \$1,000 and \$500 respectively.

The Commission held the initial art contest to select the "First of State" stamp issued in 1991. From 1991 through 1995, the stamps featured species of trout found in Pennsylvania waters. In 1996, a run of famed streams began, a series that continues. Competing artists must depict one of a select group of streams. The scene may include anglers and/or trout. However, the primary focus of the work should be the stream itself. The stream section depicted will be verified for authenticity of location.

The work may be in oil, acrylic or watercolor and measure 12 inches by 18 inches (with a one-inch border.) Artists may enter no more than two pieces. A non-refundable entry fee of \$25 must accompany each entry along with a completed entry form.

For the complete rules of entry, contact Tim Klinger, Pennsylvania Fish and Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.

Artists looking to compete for the 1998 title must depict one of the following streams:

1998 Trout Stamp and Print Approved Trout Streams

County	Waterway
Berks	Tulpehocken Creek
Cameron	Sinnemahoning Creek, Driftwood Branch
Cameron	Sinnemahoning Creek, First Fork
Centre	Spring Creek
Centre	Bald Eagle Creek
Centre	Penns Creek
Clinton	Fishing Creek
Crawford	Oil Creek
Cumberland	Letort Spring Run
Dauphin	Clarks Creek
Franklin	Falling Spring Branch
Huntingdon	Little Juniata River
Jefferson	Clear Creek
Lackawanna	Ash Creek
Lycoming	Loyalsock Creek
Lycoming	Cedar Run
Lycoming	Slate Run
Mifflin	Penns Creek
Monroe	Bushkill Creek
Northampton	Monocacy Creek
Philadelphia	Wissahickon Creek
Pike	Bushkill Creek
Pike	Toms Creek
Potter	Kettle Creek
Potter	Sinnemahoning Creek, First Fork
Potter	Sinnemahoning Creek, East Fork
Schuylkill	Little Schuylkill River
Somerset	Iser's Run
Sullivan	Loyalsock Creek
Tioga	Cedar Run
Venango	Oil Creek
Wayne	Delaware River, West Branch
Westmoreland	Mill Creek, South Fork

"Fishing and Boating Memories Last a Lifetime" Contest

Readers are invited to write their fishing and boating memories and submit them to the Commission. Submit your article to: Fishing and Boating Memories Last a Lifetime, Pennsylvania Fish and Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000. Include your name, address, phone number and age. You are encouraged to submit photographs or illustrations to accompany your article.

The Commission will divide the submissions into youth (articles submitted by persons age 17 or younger) and adult (articles submitted by persons age 18 or older) categories. The Commission will review all articles and select at least two articles in each category as prize winners. The top prize in each category will be a framed, signed and numbered print of the 1997 Trout/Salmon Stamp painting, depicting Neshannock Creek, by Christopher Leeper, as well as limited-edition patches from 1996 (Harveys Creek) and 1997 (Neshannock Creek). The second place winners will receive the 1996 and 1997 limited-edition patches. In addition to the prize winners, the Commission may select up to four articles in each category as "Honorable Mention" winners.

The prize-winning submissions and the honorable mention winners may be published in upcoming editions of *Pennsylvania Angler and Boater* magazine. Entries selected for publication may be edited to meet publication requirements.

Entries will be judged for originality, suitability for publication and relationship to the "Fishing and Boating Memories Last a Lifetime" theme. Each person may submit no more than two entries. Entries must not have been published previously, and they will become the property of the Pennsylvania Fish and Boat Commission. Photos will be returned if they are accompanied by a self-addressed, stamped envelope. The deadline for entries is July 15, 1997.

Pennsylvania Rivers Conservation Registry

The new Pennsylvania Rivers Conservation Registry recognizes local river conservation initiatives and helps protect the special qualities of Pennsylvania rivers. Rivers or river segments on the registry are eligible for the Department of Conservation and Natural Resources (DCNR) Rivers Conservation Grants, under DCNR's Community Conservation Partnership Initiative. Last year, DCNR awarded \$751,000 in grants for 21 river conservation projects. Most of these grants were awarded to organizations and communities to help them develop river conservation plans. Projects recommended in the plan include streambank stabilization, water quality testing and monitoring, environmental education, wildlife habitat preservation, and development of a greenway corridor. Grants are made available through the Keystone Recreation, Park and Conservation fund, known as Key '93.

Your one source for fishing and boating information- PA Angler & Boater

Fishin' from the Kitchen Smokin' Trout

by George Curtis

One of the positive trends in trout fishing is the spread of the catch-and-release ethic. Lee Wulff was right when he said that a trout was too valuable to be caught only once. Occasionally, though, it's still nice to bring home a few fresh trout for the table. The next time you get that urge, why not try something new? Smoked trout.

With the new backyard smokers available today, smoking trout, or any game, for that matter, isn't as difficult as you might think. It does take practice and experience to get perfect results every time, but there's a lot of fun and good eating along the way. Smoked trout are one of the most appealing outdoor delicacies ever to find their way in from the backwoods. They take on a rich brown color and smoky sweet flavor that will make you hang up the frying pan for keeps.

Trout are excellent candidates for the smoker because they are a fairly fatty fish (as fish go), and the flesh resists drying better than bass, walleyes and other less oily species.

The first step in the smoking process is to get a smoker. Maybe you can borrow one from a neighbor or a friend. If you've been thinking of buying one but are reluctant to make the investment, consider the fact that an electric or propane smoker is one of the most versatile pieces of outdoor equipment you can own. Besides trout, you can prepare delicious and appealing smoked turkey, venison, goose, duck, upland game birds, salmon and jerky. And there's no reason to confine its use to wild foods. Ham, beef, poultry and fresh pork become an "event" instead of just a meal when prepared in a smoker.

I own a smoker of the propane gas variety, and to ensure that I maximize its use, I keep it set up year-round on the picnic table in the backyard, ready for use when the impulse strikes. When not in use it's covered, of course, to protect the unit from the elements.

Once you've obtained and set up your smoker, here's what you'll need for a mess of unforgettable smoked trout:

- ✓ 4 to 6 whole pan-sized trout, heads left on (trout of uniform size give better results).
- ✓ 2 quarts of cold water.
- ✓ 1/2 cup salt.
- ✓ 18 to 24 chunks (about 1"x3") of green hickory wood, or seasoned hickory soaked in water for 12 hours.



Trout turn an appetizing golden-brown when smoked, and they take on the sweet, smoky flavor of hickory. Use trout all about the same size to ensure uniform results.

The first part of the smoking process is preparing the brine for soaking the fish. Dissolve about 1/2 cup salt into two quarts of cold water. Soak the trout in this brine overnight before smoking. The best container I've found for brining the fish is a half-gallon wide-mouth glass pickle jar. You can get these big jars at restaurants, cafeterias, hospital kitchens, or anywhere that large quantities of food are served. If you can't find one of these jars, a large glass baking dish will work.

Either way, place the trout in the jar or dish, cover with brine, cover, and store in the refrigerator overnight. You may find that you like your trout more or less salty than this recipe. If so, adjust the proportions of salt and water accordingly.

Next morning start the smoker and add a dozen or so hickory chunks on the rack directly above the flame or the electric element. I like to start the fire a little hotter than it will burn during the actual smoking process so that the wood is smoking from the moment I add the trout. While you are taking the trout out of the brine, cover the smoker to prevent the wood from flaming.

Remove the trout from the brine and pat them dry with a paper towel. Let air dry for about 20 minutes. Spray the grill with a non-stick pan coating, and then arrange the trout on the grill, allowing air space

between all surfaces. I like to prop the body cavities open with toothpicks or small slivers of hickory chips.

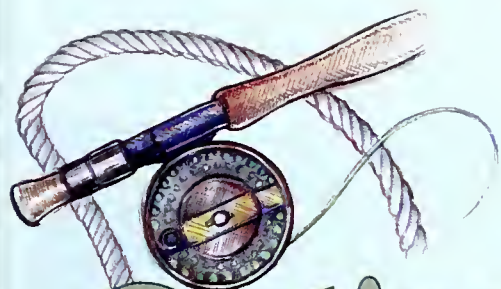
Place the grill in the smoker, cover, and turn down the flame or heat setting to the lowest possible level that still causes the wood to smoke steadily.

A half-dozen creel-sized trout usually take about two hours to smoke, but the actual time required can vary depending on the outside temperature (under 40 degrees increases smoking time significantly), wind, size of the fish, and the moisture content of the wood. When the skin turns rich golden-brown, poke it with a fork. When the flesh flakes easily, the trout are done. The smoke flavor, however, comes through with much more authority if you let the trout cool thoroughly before serving.

Share the first batch with just the family. You deserve it after the effort. Then make some more for fishing friends to sample.

There's only one danger. After you've learned to smoke your trout, you'll be constantly tempted to forsake the catch-and-release philosophy that has taken a generation to gain a foothold. When that temptation strikes, just remember that conservation of the trout fishing resource will ensure that smoked trout will be around to enjoy for many more generations to come.





Casting Lines

with
Dave Wolf

The Trout

The trout brings to us a sense of beauty and mystery woven in the fibers of dark, cold waters that flow relentlessly toward the sea, or in the depths of bank-lapping wakes driven on the wind. We as mere mortals stand with equipment of all color and design, and on the end of a frail line, attach what we hope will bring a dark darting shadow to net. If one thinks of the whole affair, it may be deemed as trivial, even amusing. But it is not—not if one considers the volumes of books and articles written about the creature and the plaques and statues built in memory of those past that had pursued them with an unwavering passion.

There is little question that over a million anglers pursue trout within the Commonwealth, and they take such excursions extremely seriously. Yes, there are many who have made a handsome living by providing “fish-getting” products.

It is of little wonder why the Pennsylvania Fish and Boat Commission produces over five million finned creatures in their raceways annually—an expensive endeavor that anglers seem willing to pay for. Others argue that they would not give one cent for a hatchery trout, claiming that the only trout is a wild trout. I am one such disciple and although I love the wild brown above all others, I have fished with all those wild-trout folks on far too many stocked waters to take them all that seriously. Prefer wild trout. Yes. Forsake all others. Hardly. Exceptions are a vast minority.

Around opening day there is much chatter about the whole affair. You have heard them, “those fin-worn hatchery products

that barely pass for trout.” And still others look forward to the day with bright-eyed enthusiasm as I once did. A starting point perhaps—hatchery trout in the oft swollen waters of April.

Young and old alike casting to at times visible fish that have lived their lives to this point on hatchery pellets. It is no sin—I have decided to be there among the ranks of opening day anglers. License sales prove that this is what the majority want, enjoy and accept as a realm of trout fishing. Those who do not prefer this form of fishing do as I do; stay home in the knowledge that the crowds will thin, or sling a camera over my shoulder and take photos.

I have established within my own mind that there is little room for quibbling over such matters. I realize that the warring factors will continue. For if the spirit moves me, I may find solitude on some of the specially regulated waters that now dot the state. And yes, stone me if you will, I might cast over stocked trout.

You may blame my childhood. My grandfather was a fly fisherman and he fished over both wild and stocked trout. My grandmother preferred fishing nightcrawlers and liver and to her a trout



was a trout, never mind where it came from. I have leaned toward my grandfather's method of fishing and away from both with my catch-and-release philosophy, something neither would have approved of. Trout were created for black skillet and to be rolled in pancake flour.

The opening of yet another trout season is upon us, and the thoughts of the tradition of such an opener vary. Still, it is the bookmark of yet another spring, of chilled waters and red hands. It, too, with any luck, is a connection with another life form; a beautiful creature regardless if it is a rainbow, brook or brown on the end of the line.

The truth of the day lies within each

of us, and it is left for self-definition. A “trout rout,” as some have labeled it, or a day steeped with tradition, of faded memories and photographs of seasons past. Of glorious days of old and of the new that still lies ahead. Memories and experiences to be created, on the opening day or on someday on another leaf of the calendar. Within each of us a new trout season evokes meaning that most of us would rather not live without.

Brook trout reside on the mountain swatches of brooks, flowing to the valley floor, where within the upper reaches wild brown and “carry-overs” reside. The stream widens and there wild trout live in minuscule numbers. Hatchery trucks have been here and they have delivered rainbows, browns and brooks, with a sprinkling of palominos. Farther downstream, only stocked trout reside, in what the biologists label a “put-and-take” fishery. And man, woman and child trod the banks of all these places.

The worth of a trout is measured within one's own mind. Be it child or adult and the day enriched by each encounter. The flowing waters become addictive and the trout that swim there even more so. The

decision I have reached many years ago is this: To each his own. If it does not endanger the resource, then I will cling to my convictions. I have decided, as with humans, trout should not be measured by lower, middle or upper class, nor should those who angle for them. The worth of a trout can be measured only by the one who brings it to net and then decides to keep or release it.

Trout season 1997—where might it lead? Now black water rushes by, and I have seen a darting shadow, and on the back cast a new book is opened, and I cast with hope that trout will fill the pages—all types of trout, both great and small.



Writing Readers

The Rainbow Hole: A Father's Gift Revisited by Richard J. Noll

In the middle of October and on a spectacular autumn day, I went to fish the lovely Big Bushkill in Monroe County. This stream has a notorious reputation for warming in the summer, and although most of the yearly stocked trout are removed during the delayed-harvest season, or migrate to cooler waters during the summer, I was just hoping to explore the area and enjoy the great beauty and tranquility of the area.

Trout fishing for me started about 20 years ago. My father would drive my older brothers and me to a small mountain stream, the Buchwa, about 30 minutes north of our family farm. That opening day, however, was different. One of my older brothers could drive and transport the bulk of my family to the "meadow" portion of the stream. Here they could all "set up camp," fish, and enjoy our first-day outing.

What was different was that this allowed my Dad and me to fish the upper "woods" stretch of the stream. Today, much to my delight, my Dad and I still enjoy fishing for wild brook trout behind the turkey



farm. I caught my very first brook trout there.

My Dad fascinated me. When I was eight years old, he could tell me how to fish, how much weight to use, and exactly, so it seemed, where the fish would strike. He always encouraged my family to "keep the line tight" and strike frequently when feeling a fish's tug, to avoid having an overzealous brookie swallow the bait and possibly injure itself.

My Dad and I, this early April morning, quickly moved past the open field in Mr. Bonser's farm, and walked into the woods

toward a nice bend in the stream. In this deep hole was a large tree whose roots were partially exposed near the undercut bank. I remember my father's words, "OK, Rick, here's where there's always one; just drift it along and when you feel him, set the hook." You can imagine my father's trepidation when his "green horn" boy lumbered into the pool, mysteriously scaring all life forms in that portion of Monroe County.

Nevertheless, after dropping the crawler near the run and bouncing it along through the hole, a brookie obliged my opening day wish, slurped in the bait, and immediately set up house in the exposed roots of the tree. My Dad, patiently observing, noticed my frustration and said, "give him some slack line, sometimes they'll swim out of that mess."

Amazingly, the brookie did just that, and as I tightened the line, I was into my first mountain brook trout. I finally had this delicate creature running and bouncing near the bottom of the pool. Finally I lifted the fish out of the water and "scooped" him into that dollar-ninety-eight trout net. I beamed with enthusiasm and pride.

Dad laughed, and said, "you raise the trout in the current, then place the net below him, and then ease him into the net—you got it? When you swat at 'em, you'll lose more than you land." Yet, here I was



*Like golf or tennis, fly
fishing gives me joy
and a deep sense of fulfillment.
I shall also be able to pass along its
heritage of appreciation and
conservation to my children.*

in youthful foolishness; I had my first trout, net, rod, and since I wasn't too wet, I must have done something right, even though my netting left something to be desired.

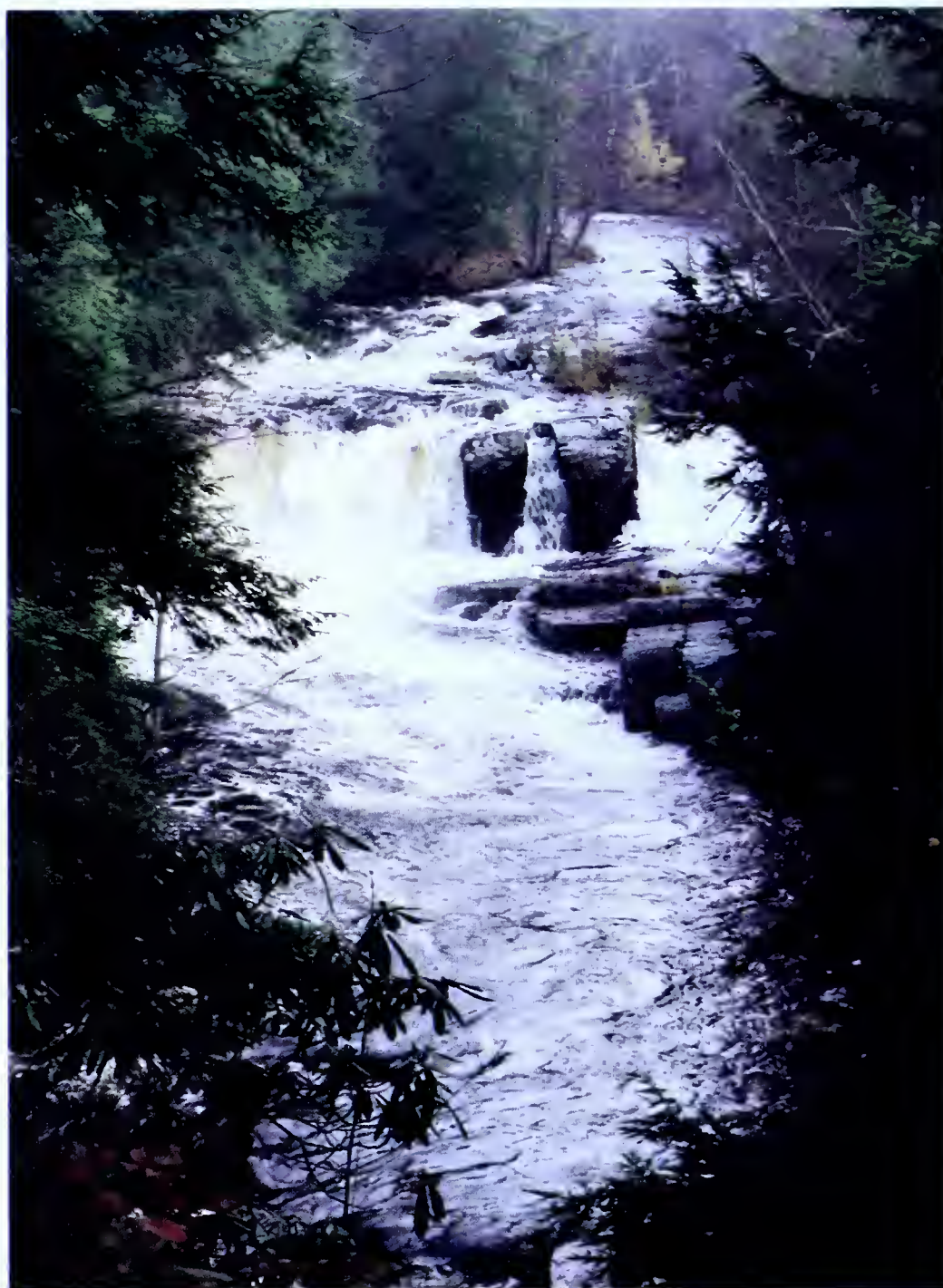
From there, my Dad and I leapfrogged down the stream alternating holes and runs, him hooking and deftly landing fish, me occasionally catching a trout more often by mistake than anything to my credit. Besides, there were frog eggs, skunk cabbage, tadpoles, ferns and other things, all of which have a way of distracting an eight-year-old.

Ah, but that was then, and now, 20 years later, I was on a wonderful delayed-harvest stream. After years of trying, tying, study and work, I was led to this fine place. The deeper runs and pools that normally hold brown trout from stocking were seemingly devoid of fish. I kept working upstream fishing an *Isonychia* Nymph, or a caddis emerger as a searching pattern, until I arrived at a wonderful place. The smaller upper falls on this portion of the stream came crashing over huge monuments of stone, and a smaller run about 20 feet long and two feet deep drew my attention. I wish I could impressively say that I was fishing an expensive one-weight with a 9x tippet, and observing Vince Marinaro's "complex rise" of a wary brown trout to a Chironomidae, but I wasn't.

I was fishing an attractor; a size 14 Zug Bug, with a few splitshot, and suddenly after a *tap, tap, tap*, there was gentle resistance. I watched the trout miss the fly and thought, "Hmm.... maybe this is the place." On my next cast, as I drifted through the run, an especially forgiving brookie inhaled the nymph, bending the fly rod. I was thrilled, and I am sure many of my angling colleagues would have appreciated this joy. The fish swam here and there and gave me a few moments of entertainment before I bare-handed him with a wet hand, removed the fly and gave him his freedom.

The mist from the waterfalls produced the most wonderful spectrum beneath the falls. As the afternoon sun set, it would strike the mist and light rays would be transformed into multiple minute rainbows for a brief moment. My next drift connected with a sturdy brown trout that doggedly fought in the body of the pool before letting me gracefully unhook him. A few more casts, a few more fish.

In casting to the distant seam on the far side of the run, I was amazed to see a nice brown trout inhale the fly, only to fight lengthwise, using the current to his full advantage. Then, with personal trepidation, I watched with concern as the brown



trout "rode the wave," out through the run over the small breakwater below me, and into the deep pool. My concern quickly changed to amusement because after tightening the slack line and leader, the trout restarted his battle, but now I had a large, deep pool in which to subdue him. After a few more minutes, I released this fine fish back into the run.

Three more strikes, three more trout, consisting of a mixed bag of three brooks and three browns. I was overwhelmed. Many of the heavier fish turned broadside and "rode the wave," out of the brisk run into the deeper pool. It was a nymph fisherman's paradise!

After the last fish, taken on a Muddler Minnow, I gave thanks, and noticed all the lovely minutia of rainbows in the warmed mist of the afternoon sun. I'll always re-

Big Bushkill Creek, Monroe County

member a rainbow as a special promise of protection from disaster, and this place is truly beautiful.

As I walked back to the truck, I mirthfully imagined what my Dad would say when these fat brookies or brownies "rode the wave." My eyes must have been enlarged as I saw the fish of my desires go crashing over the wall, and my rediscovered happiness as I found I hadn't lost the fish at all. I will never be able to describe the thankfulness and appreciation for my Father who gave me a lifelong pastime.

Like golf or tennis, fly fishing gives me joy and a deep sense of fulfillment. I shall also be able to pass along its heritage of appreciation and conservation to my children.





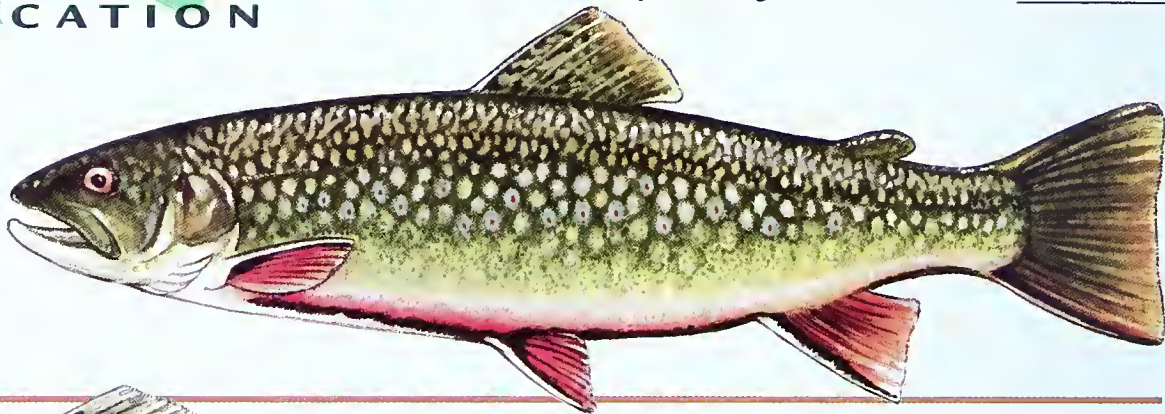
TROUT

IDENTIFICATION

April 12 is the opening day of the trout season in Pennsylvania. If weather and water conditions cooperate, your chances of catching a trout are good. Use this guide on the stream so that you can tell which kind of trout you've caught!

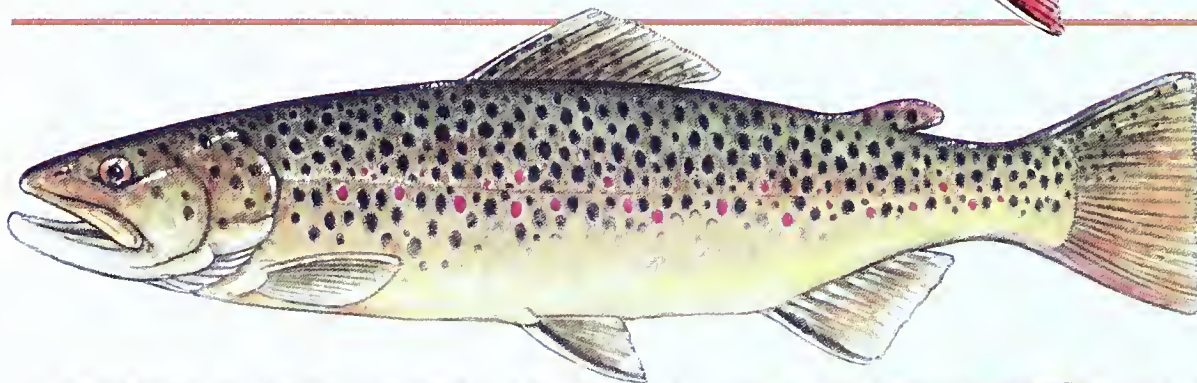
BROOK TROUT

The front edges of the pectoral fins (sides and bottom of the trout) are white. Red spots with bluish halos dot the body. The tail is nearly square. The brook trout is Pennsylvania's official State Fish.



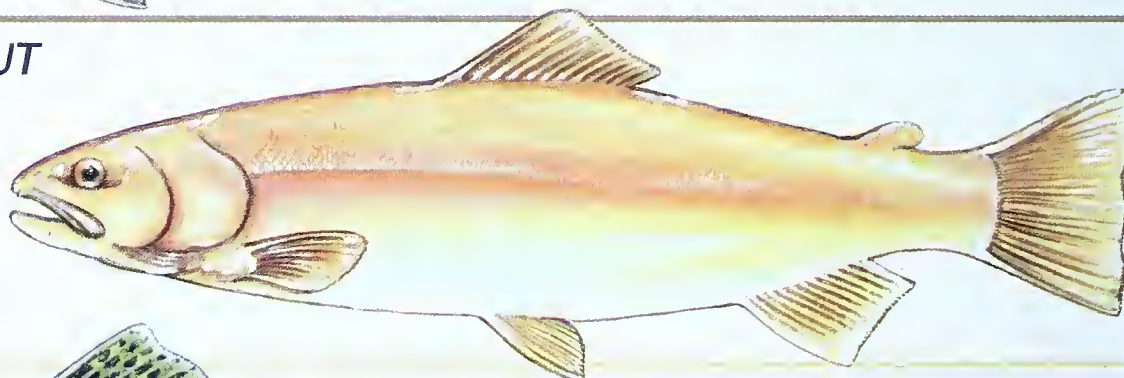
BROWN TROUT

A brown trout's body is golden-brown. The body has large dark spots with pale halos. Sometimes the body also has red or yellow spots. The fins are yellowish-brown. They have no spots or white edges. The tail usually has few or no spots.



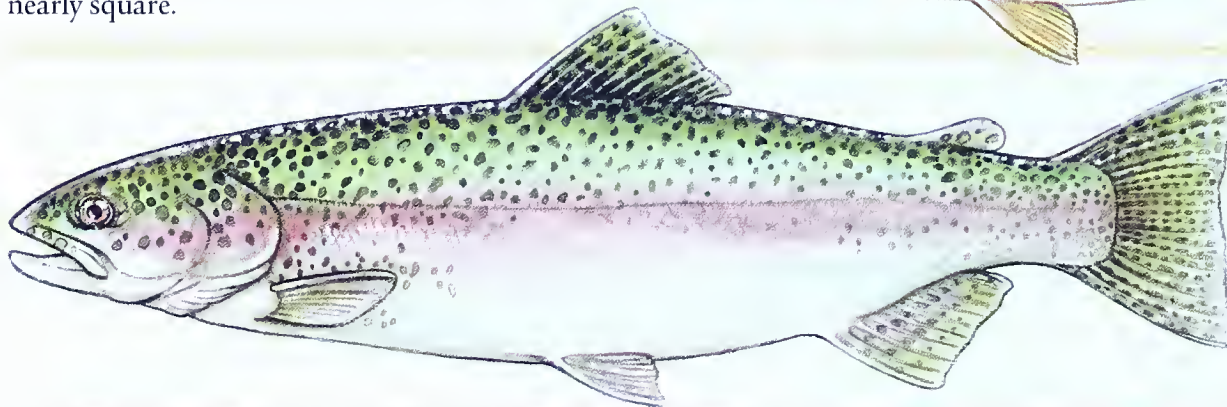
GOLDEN RAINBOW TROUT

The golden rainbow is also known as a palomino trout. A golden rainbow's body is deep-yellow or orange-like. The sides are unmarked, but some golden rainbows have a darker-orange lateral line. The tail is nearly square.



RAINBOW TROUT

A rainbow trout's body is greenish. The adults usually have a pinkish lateral stripe. Rainbow trout also have many small, black spots on the body. The tail is heavily spotted. The inner mouth and gums are white.



IN THE LAKES...

STEELHEAD

Steelhead trout are rainbow trout that live in Lake Erie and ascend Lake Erie tributaries. A steelhead's body is silvery.



LAKE TROUT

The lake trout is found only in a few of Pennsylvania's deepest and coldest lakes. Lake trout are bright-gray, often olive, shading to silvery white on the belly. They are profusely covered with large light-colored spots, and the tail is deeply forked.



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Celebrating a Milestone

On May 29, the Fish and Boat Commission joined its many partners in the Susquehanna River shad restoration to dedicate the multi-million dollar fish lifts at Holtwood and Safe Harbor dams. The effort, the largest shad restoration program of its kind in the United States, is a model of how public and private partnerships should work together. Even as we gathered for the ceremony, the largest shad run of the modern era was in full swing on the river and not showing any signs of slowing. I was honored to be among the speakers that day; here are my remarks.

Today is a time of great pride for all of us—as well it should be—for this is an event that we can truly call historic. In 1866, shortly after the end of the Civil War, a group of concerned citizens, policy makers and government officials met on the shores of the Susquehanna River in Harrisburg to address public outcry over the diminishing fish populations in the Commonwealth's rivers and streams. They were especially concerned with the plight of anadromous fishes such as the American shad, whose once plentiful spawning runs had decreased to a mere trickle. That convention, over a century ago, marked the beginning of the first fish restoration efforts in Pennsylvania.

Now, 131 years later, I cannot help but reflect on the remarkable similarity between that day and this one. Here we are today, another group of citizens, policy makers and officials gathered along the Susquehanna River, all of us drawn together in our common concern for migratory fish. Today, however, we do not join together to lament the loss of a resource, but to celebrate a milestone along the path to recovery. And we know now that the continuation of these efforts will be far more complex than that original group could ever have conceived.

That initial meeting led to the passage of legislation creating the Pennsylvania Fish Commission. Governor Andrew Curtin appointed one man, James Worrall of Harrisburg, to the task. The legislation gave him a little over a year to complete the task of reversing decades of decline.

Today, we are keenly aware that the job is too large for one person or even one agency or corporation. Only the collective willingness to meet the shared responsibility to the environment has led to our current successes on the Susquehanna River.

The commitment of resources by the utilities is obvious. The lifts we dedicate today stand as a towering reminder to that commitment. We applaud the tenacity of Pennsylvania Power and Light, Baltimore Gas and Electric, and Safe Harbor Water Power Corporation management and that of Cianbro workers in overcoming setbacks caused by the extraordinary flooding in 1996.

There are many others who also deserve applause, those whose work is less tangible than steel and concrete. From the research of the 1950s, the 1969 formation of the Susquehanna Shad Ad-

visory Committee, the construction of an experimental fish lift at Conowingo Dam in 1972, the development in 1976 of the Van Dyke Research Station—the world's first American shad hatchery—the evolution of the Susquehanna River Anadromous Fish Restoration Committee, to the historic agreements among resource agencies and the utilities in the 1980s and '90s, there have been scores of individuals who have brought their time and talents to this effort. We have witnessed decades of diligence by individual research scientists, hatchery workers, shad collectors and fish lift operators. As we thank them today, we must also recognize this is a time to renew and strengthen those partnerships, because they are necessary for continued success.

Final responsibility for managing the American shad in Pennsylvania waters resides with this agency. As Executive Director of the Fish and Boat Commission, I promise you our efforts will continue. Many of these efforts were initiated by former Executive Directors Robert Bielo, Ralph Abele, Ed Miller and Larry Hoffman; I am proud to continue their commitments.

The stocking of American shad from our Van Dyke facility has been essential in creating a population that recognizes the Susquehanna River as its home. We will continue with stocking efforts until it is ensured that natural reproduction can sustain shad in each natal stream.

Survival of American shad will not be diminished by harvest until populations are self-sustaining. Regulations prohibiting harvest of migratory fishes will remain in place, and I have directed our fisheries staff to seek minimal harvest of restoration shad by inter-jurisdictional fisheries and coastal intercept fisheries.

We will continue to encourage and support fish passage at other blockages in the Susquehanna River basin. Chesapeake Bay Program funding has allowed us to breach and dispose of the first blockage on the Conestoga River, and we will continue to work with the Chesapeake Bay Program to do the same elsewhere.

We will continue monitoring efforts through agreements with the members of the Susquehanna River Anadromous Fish Restoration Cooperative, the state of Maryland, and the National Marine Fisheries Service.

We look forward with great anticipation to future celebrations of fish passage at York Haven Dam, the city of Harrisburg dam, the Fabri Dam at Sunbury and at the blockages of tributary streams.

As we reflect on more than a century of work and tour the magnificent facility here today, it is impossible not to be impressed by what we, collectively, have accomplished to this point. We have all lived up to the promises made in the past. This history makes me even more excited for that which is still yet to come.

Peter A. Colangelo
Executive Director
Pennsylvania Fish & Boat Commission

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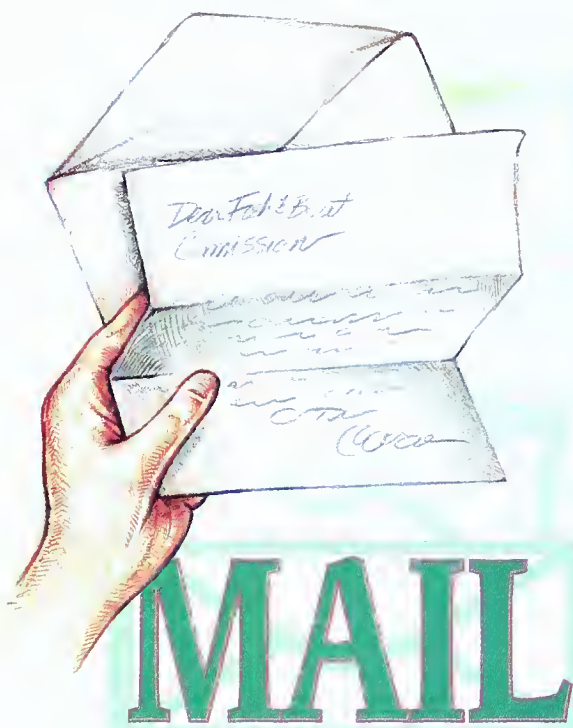
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This issue's cover, photographed by Art Michaels, shows regular contributor Mike Bleech with a 17-inch, 2-pound brown trout he caught in the Allegheny River, just downriver from Kinzua Dam. Miscellaneous regulations apply from the dam for .75-mile—no closed season on trout with a daily combined limit of three. Below this area, though, inland-waters regulations apply. Do these and other regulations sound complicated? Or worse, do they dissuade anglers from fishing? Find out what most Pennsylvania anglers think about the complexity of our fishing and boating regulations in the article on page 57.





Bass fishing suggestions

As an avid Pennsylvania angler, I have some suggestions that I feel would help bass fishing in our area. I read in the *Summary of Fishing Regulations and Laws*, page 33, "Delayed Harvest, Artificial Lures Only," that there are 36 counties that require fishermen to use artificial lures only. On page 35, "Trophy Trout Projects," there are 6 counties where one can fish for trophy trout. On the same page, there is a heading, "All Tackle Trophy Trout," which describes two places where the law permits lures, flies, streamers, etc. I am very pleased to note that the Fish and Boat Commission saw into the future on this project, and I propose that a similar project be initiated for bass fishing in our area.

I have talked with fishermen and fish wardens from Maryland and understand that they have been very successful in designating a part of a river for catch and release. They have stated there have been dramatic changes in the number of bass caught. It is my understanding that very few people disapproved of this project.

I would like the Fish and Boat Commission to consider the following proposals:

1. The Susquehanna River from Amity Hall to the George Wade Bridge be designated as follows: (1) 20-inch bass catch per day from June through September and from October through May be designated as catch and release. Fishermen could use artificial lures or live bait.

2. The Susquehanna River from Amity Hall to the George Wade Bridge be designated as follows: (1) 20-inch bass per day during the entire season. Fishermen could use nothing but artificial lures. The bass fishing would be catch and release.

These proposals, if instituted, would increase the sales of resident and non-resident fishing licenses in Pennsylvania. In three to five years fishermen would be able to catch 20-inch bass on a regular basis. The Fish and Boat Commission could expand on these proposals over the years to make an even better project.

I would like this project implemented for 3 to 5 years and then a survey could be taken every year from fishermen getting their input and ideas on the success of this project.—*Ronald Kenno, Dauphin, PA.*

I'm sure you recognize that the lower Susquehanna River up to Sunbury is currently under special regulations and has an exceptional population of small-mouth bass.

Submission of your suggestions is very timely. The Commission has only recently established a Bass Workgroup to discuss issues related to bass fishing. This workgroup consists of Commission staff and a small group of representatives of the angling public who have a strong interest in bass fishing. This workgroup had its first meeting last February.

Two of the angler representatives on that workgroup, Mr. John Shearer and Mr. Fred Bohls, are among the recipients of your letter. I have forwarded a copy of your letter to members of our Fisheries staff who are also part of the Bass Workgroup. I am sure the group will consider these and all similar proposals as they discuss bass and bass management in Pennsylvania.

Thank you for your interest in and concern for bass and bass fishing in the Susquehanna River and for taking the time and effort to share your proposals with the Commission.—*Peter A. Colangelo, Executive Director.*

Boat license?

I've wondered for some time if the Fish & Boat Commission has ever considered issuing a fishing license to cover a couple of fishermen on a pontoon boat. I have a lifetime license, as do most of my fishing partners. I have family in California, North Carolina, Florida and Texas, as well as friends who do not really fish, but if they come to visit for a few days and have their small children with them, to whom fishing is a big thing, we have a problem.

We have about 200 boats on Glendale Lake, and I don't know how many would

agree with my thoughts, but for me, I'd be willing to pay a reasonable fee for a permit that covers my boat and would allow a couple of adults to fish from my boat.—*Robert Huntington, Clinton, PA.*

Thank you for your recent letter inquiring into the availability of a fishing license that would cover all the passengers on a boat. This is an idea which, to my knowledge, has not been advanced before.

First, and perhaps foremost, those activities that we regulate are defined in the Fish and Boat Code as established by Pennsylvania's General Assembly. They determine what activities we regulate and what classifications of license we issue. But in general, a license constitutes a right, bestowed on an individual, for some specific purpose, and usually on the payment of a set fee. Thus, it is a person who is licensed, not an inanimate object such as a boat.

However, the solution to your problem might be the 3-day tourist license. This was designed for the short-term visitor to Pennsylvania who chooses to angle while here. Your friends and family from out of state can enjoy this reduced-fee, non-resident license while enjoying their sport. Of course, for longer stays or the frequent visitor, we also have a 7-day tourist license and an annual non-resident license.—*Wasył Polischuk, Director, Bureau of Administration.*

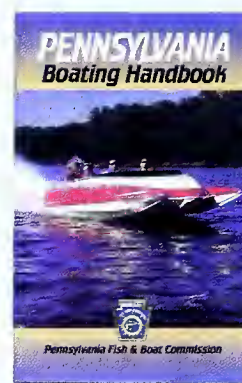
Boating Handbook comment

In preparation for the 1997 boating season and with the purchase of a larger fishing boat, I just finished reviewing your 1997-98 *Boating Handbook*. My reaction is a most enthusiastic "Well done!"

I found the book to be one of the most well-organized and easy-to-understand documents I have ever encountered from any source. The graphics are excellent.

Congratulations on a fine piece of

work. I find genuine peace and much enjoyment fishing and boating. Catching isn't all that important.—*William G. Steiner, Mt. Pleasant, PA.*



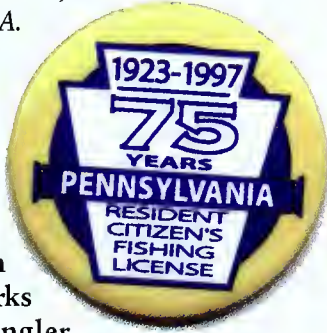
Memories To Last A Lifetime



Commemorative license button

When I was a young lad, I remember the fishing license buttons. My father, the late Robert W. Steventon, was a special warden and always had number 27 on his license button. We lived in Carbon County, Nesquehoning. This anniversary button will be special to me. Thanks to Dad for introducing me to fishing.

—Dr. Dale Steventon,
Schnecksville, PA.



The limited-edition commemorative license button the Commission produced marks 75 years of angler and boater support for Commission programs. The first resident fishing license was established in 1922. License buttons were first sold in 1923. For the first time, then, the Commission became self-supporting. The commemorative license button is modeled after the first one of 1923.

The button is offered free with any purchase of a Commission "Memories" patch or rainbow darter patch. The two patches appear on the publications order form, which appears between pages 48 and 49 of this issue. Buttons are also available for \$2.83 each plus 17 cents state sales tax.—Ed.

Inspired by contest

Thank you so much for sponsoring the "Fishing and Boating Memories Last A Lifetime" contest. Your contest has been the start of something that will be very special to me for years to come.

I thoroughly enjoyed writing two stories for you consideration, so much so that I've decided to put some of my other fishing memories into words. I've put those stories in a notebook, and my new "Fishing Journal" is growing weekly.

Composing those stories reminded me how much fishing means to me. Some of my fondest memories are about fishing some stream or pond with my father or grandfather. It was great to relive some of those moments. I also have come to realize how important it is for us sportsmen to protect our natural resources. Continued development in the Keystone State will undoubtedly come into conflict with

sportsmen's interests, and we must be sure to be active and vocal in the protection of our fishing and outdoor opportunities. Most importantly, I have begun to realize how crucial it will be for me to protect the privilege of fishing, not so much for myself, but for future generations.

Old age will attack my body someday and I won't be able to fish as hard or as often as I do now. But I will always have my journal. And I will always be able to sit back and reflect on some of the finest moments in my life as I read its pages for years to come.

Thanks again for a great contest and for a great publication!

Although I no longer live in Pennsylvania, I do take a one- or two-week vacation each spring to fish there. And I try to keep informed on what's going on "back home."—Harry E. Schloder, Jr., Jacksonville, FL (originally from Ernest, PA).

The journal is a great idea. Others anglers we've heard from use computer databases to keep track of their fishing trips' details, in addition to making extensive journal-like notes. We invite readers to write to us and let us know how they keep track of and record the details of their fishing excursions. We'll compile the information and present it in a future issue.—Ed.

Comment on cost of fishing

Please ignore my letter of 3/19/97. The letter was in regard to my not getting my magazine this month. Well, I mailed the letter 3/19/97 and the magazine arrived 3/20/97. You also pointed out in this issue why this issue was late. Including the stocking schedule with the March/April edition was a capital idea. Good thinking! I read the magazine from cover to cover. I really enjoy it this time of year when it's difficult for me to get outside. Thanks for a wonderful magazine.

I would also like to comment on the cost of fishing. I find it impossible to side with people who say the license is too expensive. A resident fishing license plus a trout stamp costs \$22.50. Plenty of people spend this much or more at a sporting event or a show. Divide \$22.50 by 365 (days of the year when you can use your license) and the cost is about \$.65 for a 24-hour day. Furthermore, for a 24-hour day, the cost is approximately \$.003 an hour. What a bargain!

Yes, if you are an avid fisherman you can

fish every day of the year with this license—some type of fish is in season. There should also be a junior fishing license for people from 12 to 16 years of age. Even if it is only \$5 a year. Maybe this would help the juniors see the job you are trying to do for Pennsylvania.

Keep up the good work. You're doing great.—Mario Bono, Ebensburg, PA.

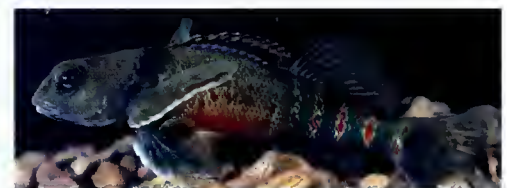
Highlighting the positive...

Last evening when I got home and was going through the day's mail, there were two envelopes from your department. The first was the renewal form for my boat registration. The second was our permit for our Lake Wallenpaupack tournament.

Mr. Manhart [chief of the Commission Bureau of Law Enforcement], knowing your schedule is hectic, and with the numerous holidays just past, I felt a short note of thanks was in order. We sincerely appreciate your taking the time not only to consider our request, but to process it expeditiously as well, which allows us to move forward with our season.

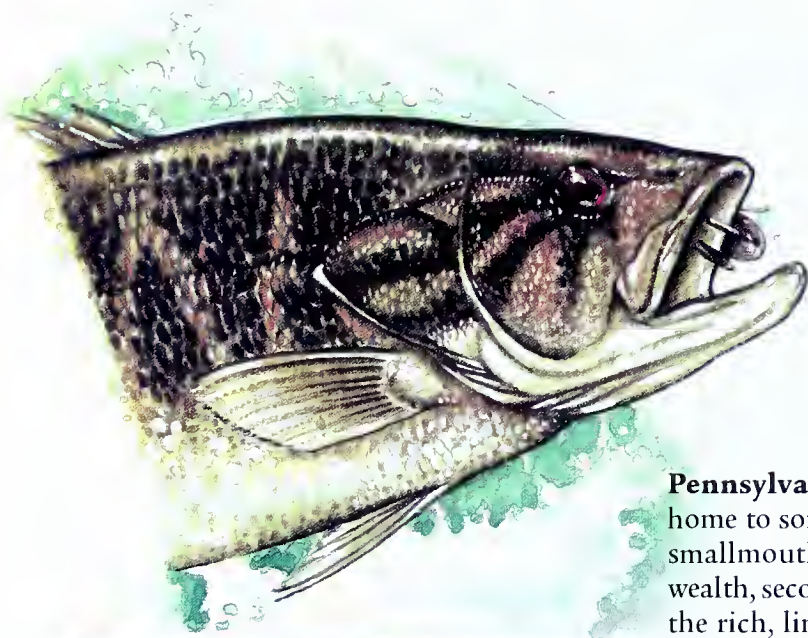
Mr. Manhart, this closing paragraph is not being written as the result of your honoring our request, but rather because of the positive direction our fisheries are headed in. In today's society when it seems as if all one ever hears about are the negatives, I wanted to take the time to highlight a positive. That positive, Mr. Manhart, is you and your staff. *You are making a difference for us, the sportsmen.*

Again, our sincere thanks, and please share this with your staff.—Fred W. Huch, Tournament/Public Relations Director for the ABA of Eastern PA & NJ.



The new PA&B

The new *Pennsylvania Angler and Boater* is great! I especially enjoyed Andrew Shiels' article about darters ("Pennsylvania's Dynamic Darters," January/February 1997) and Karl Blankenship's article on mussels ("Mussels," January/February 1997). Hopefully, future issues will bring articles on reptiles and amphibians, which were neglected lately in the *Angler*.—Stan Kotala, Altoona, PA.



Northwest Pennsylvania's Untapped Smallmouth Waters

by Robert L. Petri

Pennsylvania's northwest corner is home to some of the best flowing-water smallmouth fisheries in the Commonwealth, second in quality perhaps only to the rich, limestone-tinged streams and rivers of the Susquehanna and Juniata basins in the southcentral portion of the state. From the broad sparkling flats of the Allegheny to the more intimate and wild reaches of the Clarion to the dark, rich waters of French Creek, there is an abundance of well-known flowing water smallmouth factories here in Pennsylvania's "Great Northwest."

However, like most parts of our state, the northwest also has a number of smaller and lesser known smallmouth streams and rivers that all but go begging for anglers during the productive summer months. They are a decidedly under-used resource, providing not only a quality fishing experience, but also some much needed elbow room when the local lakes are experiencing their peak usage period for the year. Here is a sampler of some of the best of these waters.

Brokenstraw Creek

Like many of the other untapped northwest Pennsylvania smallmouth waters, this major Warren County stream is better known as an early season trout fishery. However, smallmouths are abundant here throughout the approved trout water section of the stream from the village of Spring Creek along PA Route 426 several miles east of Corry all the way to the mouth at the Buckaloons National Forest Recreation Area near Irvine, off US Route 6, a few miles west of Warren.

Even though almost all of the Brokenstraw flows through privately held lands, access is good for the most part. You can help keep it that way by being a courteous angler, respectful of the property owners' rights.



Upper Oil Creek



Even though the section of the stream above Pittsfield along PA Route 27 holds fair to good numbers of bass, the addition of the flow of the Little Brokenstraw at this point nearly doubles the size of the main stem, and the best fishing is found from here to the mouth. There are numerous long, deep pools, particularly in the last few miles of the stream from Youngsville to the mouth. There are also many undercut banks and other holding water throughout the Spring Creek to Buckaloons section to shelter the resident bass.

The portions of the Brokenstraw from Spring Creek upstream are characterized by a slow flow and gentle gradient, and they are good northern pike habitat, so it is not uncommon to hook up with an occasional pike in the lower, better bass fishing sections of the stream. In fact, the Brokenstraw's direct connection to the Allegheny at Buckaloons, and the resulting fish migrations, seem to allow for a regular smorgasbord of angling possibilities here. In a single June day's fishing in the section near Pittsfield, I caught and landed smallmouths, walleyes, northerns and even a stray 14-inch rainbow remaining from the stockings of spring.

PA Route 426 provides access to the Brokenstraw from the village of Spring Creek downstream to Pittsfield. US Route 6 east out of Pittsfield roughly parallels the stream from there to the mouth.

Oil Creek

Like Brokenstraw Creek and most of the other untapped northwest smallmouth destinations, Oil Creek is another "two-story" fishery whose banks are often crowded in April and May by trout fishermen. Yet, by the time mid-June comes to the Oil Creek valley, angling pressure for trout drops off dramatically as water temperatures rise. But this doesn't mean the fishing is over, not by a long shot. The 25-mile section of Oil Creek from Centerville along PA Route 8 in eastern Crawford County to the stream's junction with the Allegheny at Oil City offers very good fishing for smallmouth bass. And as "creek bass" run, the size of some of these fish may surprise you.

The portion of Oil Creek from Centerville downstream to Titusville is a fairly narrow, low-gradient waterway averaging 40 to 60 feet in width. It meanders through a wide valley as it travels south toward Titusville. The best bass fishing I have found in this section has been in the waters between Centerville and the crossroads village of Tyronville about four miles downstream. Here, Oil Creek shows a lot



of high clay-banked pools and log jams to provide bass cover. The stream alternates between deep, slow pools and shallow runs. Most of the bass can be found holding tight to the high banks and wherever rocks and logs provide instream cover.

A scattering of largemouth bass also calls this section of the stream home, particularly in the section of Oil Creek at Mystic Park near Hydetown, a few miles north of Titusville off PA Route 408. Here, a very low gradient provides the type of cover that largemouths prefer.

The Centerville to Titusville section of Oil Creek flows almost totally through privately held lands. Access remains good enough for the stream to be included in the catchable trout program, but always respect the rights of the property owner. Ask permission to fish, and do not litter or otherwise damage the good landowner relationships that exist in this portion of the stream.

As Oil Creek swings south of the city of Titusville and picks up the flow of the Pine Creek watershed, its character changes significantly. The stream nearly doubles in size as it sweeps southward for nine miles through the beautiful confines of Oil Creek State Park. The scenery is reminiscent of the great freestoners of our northcentral tier like Kettle and Pine creeks. Long pools framed by rocky shorelines alternate with shallow flats and sharp riffles. And the bass are everywhere. Even though these fish will be in the 10- to 13-inch range, there are more than enough 14- to 16-inchers around to keep things interesting.

Heavy stocking and the excellent access

provided by the presence of the state park make this portion of Oil Creek one of the most popular early season trout angling destinations in Pennsylvania's northwest. However, as summer tightens its grip on the land and the trout fishing becomes an early morning and late evening event, miles of this waterway see little pressure on a day-to-day basis. Usually, it's just you, the occasional heron or wood duck and the bass.

Even though trout stocking on Oil Creek ends at the Rynd Farm bridge on PA Route 8 about a mile upstream from Rouseville, the good bass fishing continues for the remaining four miles of the stream to its junction with the Allegheny at Oil City. These lower reaches of Oil Creek flow between banks dotted with refineries, restaurants and the bustle of Oil City, and the area is not the most aesthetically pleasing portion of the waterway. But the bass are there in good numbers nonetheless.

Access to these lower sections of Oil Creek requires a little more effort than the upper portions of the stream. There is road access at the Drake Well Museum just south of Titusville. In Oil Creek State Park, there is direct access to the stream at Miller Farm and Pioneer, and from Petroleum Center downstream to Route 8 at Rynd Farm. A biking/hiking trail parallels the stream through the state park section and is a good way to get to water few other bass anglers hit.

Tionesta Creek

This large, beautiful mountain waterway that traverses the heart of the Allegheny

Northwest Pennsylvania's Untapped Smallmouth Waters

National Forest in Forest County is another of the best-kept smallmouth secrets of northwest Pennsylvania. From the tiny village of Lynch in northeast Forest County 26 miles downstream to the backwaters of the Tionesta Reservoir, Tionesta Creek offers good, uncrowded fishing for stream smallmouths.

Tionesta Creek is slightly smaller than the Brokenstraw in most sections, averaging 60 to 80 feet wide. The stream is characterized by long, shallow flats filled with sunken sheets of rock and boulders, interspersed with occasional deeper runs and pools. The first-time bass angler here may take a look and decide there are few places with enough depth to hold many fish. But there are many bass here, and even the shallower flat water can be productive.

The 15-mile section of the Tionesta from Lynch downstream to Kellettville is paralleled by PA Route 666 to provide easy access. Because this portion of the stream is a heavily used trout fishery earlier in the season, there are numerous pull-offs and parking places when you find a section of the water you wish to sample.

At Kellettville, Tionesta Creek loses its stocked trout designation, and becomes classified as a warmwater fishery the remaining 10 miles to the Fish & Boat Commission access at Nebraska. Commission Area 2 Fisheries Manager Ron Lee calls the bass fishery in the Kellettville-to-Nebraska section "good to excellent." The stream gains considerable volume at Kellettville with the addition of the flow of Salmon Creek, but for the most part, it can still be comfortably waded.

Access to the Kellettville-to-Nebraska section of Tionesta Creek is provided by an old blacktop spur that leaves PA Route 666 about a mile west of Kellettville. The road follows the stream for approximately six miles before ending at the mouth of Ross Run, and there are numerous pull-offs along the larger and more obvious pools.

Fishing these waters in the lower flows of summer calls for different tactics and techniques than you might try on larger rivers. Stream smallmouths can be as spooky as any trout in low-water conditions, and you should make your approach to the water accordingly.

Oil Creek and Tionesta Creek in particular become very clear in July and August, and the bass can be hard to approach. Because of the more agricultural nature of its upper watershed, Brokenstraw Creek tends to retain a little color throughout the season, and this can help

mask your approach. Still, on all these waterways, you will have your best luck by taking a page from the trout angler's tactics book. Wade slowly to cause minimal disturbance, keep your silhouette as low as possible to the stream surface and make use of available streambank cover to avoid spooking the fish.

The bass in these smaller rivers and creeks have a pretty reliable set of habits and water type preferences that you can use to your advantage in finding and catching them. You will never find them very far away from cover, especially when the water is low and clear. The optimum holding lies are those places that afford good access to both forage and cover. Hence, pay special attention to rocky-banked portions of the stream that are close to either deeper areas or broken-water sections of moderate depth.

An excellent place to look for bass in these waters is in long, flat sections of moderate depth (in the 2- to 4-foot range) and flow rate. There should be cover nearby in the form of boulders or downed trees. The bass often cruise these areas in search of food. This can provide some of the best fishing if your approach is quiet and deliberate.

In the lower reaches of Oil Creek is one such long flat I often fish. If you wade out and then stand still and watch, you will eventually see the unmistakable black-tipped tails of the bass as they search for crayfish, minnows and other forage. A good set of polarized glasses can help you see the fish. Cast your lure, fly or bait a few feet in front of the bass as they are traveling. A quick strike or pickup is often the result. This "sight fishing" for stream smallmouths is not only exciting, it is also very effective.

Remember also that for all their pugnaciousness, stream bass are quite gregarious. They often tend to travel in groups of three or more. So where you take one, there are probably others.

Finally, remember that sunlight and shadow play big roles in the activity levels of the bass. Fishing is usually best during periods of low light, early and late in the day. Days with a full overcast or a gentle all-day drizzle provide the same type of conditions, and fishing can be excellent

all day long. On sunny days, look for the bass where the water is shaded by stream-side trees. Often, the bass gravitate to these shaded sections even when they do not provide the best available cover in a given stream section.

Tackle, techniques

The best tackle and techniques vary by your choice of gear. Bait anglers can do well by hooking a single hellgrammite on a light-wire hook and drifting it along the shaded banks and through the in-stream rock gardens. Crayfish are perhaps the most abundant natural forage in these streams, and they also make excellent bait. Even though you should be able to get away with 6-pound test in most stream conditions, very low and clear flows are better fished with 4-pound test.

Spin fishermen can take these fish on small crankbaits, small balsa wood minnow imitations, spinners and jigs. The operative word here is *small*. In the low-water settings of Tionesta Creek and Oil Creek in July, you want your offering to make a minimal amount of disturbance when it hits the water in most cases. Lures of 1/8-ounce or 1/4-ounce at most are better for this type of fishing.

Fly fishers can score on the smallmouths of smaller streams like Brokenstraw and Tionesta creeks by using many of the same offerings that take trout in the spring. Streamers such as the Zonker in shades of black or white are especially effective. Sometimes the bass respond better to a dead-drift presentation. Other times, the fly needs to be actively worked to get their interest. Experiment until you find what works.

Traditional trout nymphs like the Hare's Ear, Black Stonefly and Fox Squirrel in sizes 6 through 12 are deadly on these fish when dead-drifted through the deeper pocket water. In addition, an assortment of good crayfish and hellgrammite imitations should be in every stream bass angler's flybox.

A fly rod of 8 1/2 to 9 1/2 feet balanced for a 6-weight or 7-weight line is about optimum for this fishing. The longer rod lets you guide your fly as it drifts through the rocky sections and also aids in strike detection.

Whatever your choice of tackle and technique, give these untapped northwest smallmouth waters a try this year. I have outlined just a few of the better ones. There are many others. Much of the fun is in the finding.





Biking Fishing

by Bob Quarteroni

The combination of off-road biking and fishing is the ideal solution for those seeking solitude along with their fishing.

There are 12,052,000 Pennsylvanians and they were all out fishing one fine spring day. At least it seemed that way. No matter where my friend Woody and I went throughout northeastern Pennsylvania that Saturday morning—Tobyhanna Creek to Harveys Creek, Mud Run to Hickory Run—there were anglers, and plenty of them, on the water when we arrived. Which was their right, of course. But it was also my problem: I prefer to fish alone; just me (and perhaps a friend) and the stream. After a frantic week of work, highway and home, I relish the tranquility of my private hours on a mountain brook or deep-flowing river. However, with the growing popularity of fishing in general and fly fishing in particular, those solitary experiences are increasingly difficult to come by. Drive or hike where you will, odds are someone will be there ahead of you. The solution? Biking and fishing.

The combination of off-road biking and fishing is the ideal solution for those seeking solitude along with their fishing. It allows you access to many miles of state waters normally out of reach, provides a bit of stress-reducing exercise, and most importantly, lets you get away from the crowd.

Which Woody and I did. Luckily, we both had our bikes with us. Woody had his mountain bike and I had my hybrid (a cross between a road bike and a moun-

tain bike). We headed to White Haven and the northern end of the 24-mile-long trail that parallels the Lehigh River all the way to Jim Thorpe.

Our initial bike-and-fish outing was unplanned, so we had to improvise. We threw what supplies we could into plastic bags and lashed them to our bikes with rope. Then, carrying our rods in our hands, we pedaled until we were out of sight of everyone, anglers and hikers alike. Those five or six miles, which would have taken us several hours to walk, cost us only 20 minutes of easy biking on the level trail. We found a suitable spot, chained our bikes to a trailside tree, and proceeded to enjoy a private afternoon of fishing, undisturbed by fellow anglers (or fish, if I remember correctly).

Since that initial outing, we've learned how to make biking and angling more comfortable and productive, but we haven't found a better way to maximize contact with fish while minimizing contact with people. If you decide to give it a whirl, realize that you'll need a few things: A bicycle, of course. It needn't be fancy, since the best biking and angling trips are not up Alpine mountain passes, but on easy to moderately difficult dirt roads, paths and trails. Whether a beginner's special or a top-of-the-line mountain bike, it should be thoroughly checked to make sure it's in good shape. There is nothing worse

than having a blowout or breakdown when you are 10 miles from your vehicle and you have to walk back, carrying your gear...and pushing your bike!

Bikes

What type of bike is best? It depends on you. If you plan to stay off paved roads entirely, then a rugged mountain bike, with flat handlebar, fat tires, cushioned seat, 15 to 24 gears and powerful handbrakes, is probably your best bet. If, like me, you plan to spend time both on highways and off the beaten path, then a versatile hybrid will serve you well. Hybrids, also known as cross-terrain or cross-fitness bikes, resemble mountain bikes with flat handlebars and cushioned seats, but they normally have fewer gears and narrower, less knobby tires. Hybrids are generally not as expensive as mountain bikes.

Road bikes, with their drop handlebars, skinny, high-pressure tires and narrow seats, are simply not suited for dirt roads, forest trails or cinder paths and should not be used on them: You are simply asking for an accident or a fall if you do.

Fishing tackle

Unless you have the balancing abilities of a Wallenda, you'll want a travel rod and case that you can strap to the frame or handlebars of your bike or carry in a backpack, another biking and angling necessity.

Biking Fishing



Biking and fishing let you reach many miles of waters that you might otherwise not see. This activity provides a bit of stress-reducing exercise, and most importantly, it lets you get away from the crowd.

If you are a spin or bait fisherman, you can pick up telescoping rod-and-reel combinations at many department stores for as little as \$25. If you are a fly fisherman, a four-piece travel rod is your best bet. These are available at many fishing shops and through all major outfitters. And you needn't mortgage your future to own one. Even though you can spend more money for a travel rod than I paid for my first semester of college (it was in the late 1960s), you can also find decent equipment at very reasonable prices. One travel outfit I purchased from a mail-order outfitter included a 5-weight, 8-foot graphite rod with cork handle (and surprisingly good action), a matching reel, line, backing and they even threw in a leader. The cost: \$90.

You'll also want a sturdy case for your travel rod. The 30-inch aluminum tube with brass screw cap I bought from the same outfitter cost \$20 and is virtually indestructible.

A long cable or chain and a good lock is also important. Unfortunately, even in the backwoods, the possibility of a thief making off with your bike is too great to chance it.

Your backpack needs to contain everything you might conceivably need for the day, because strolling back to your vehicle isn't an option when you are a county away. So don't forget plastic bags if you plan to keep fish, dry clothes, insect spray, water, lunch and sunscreen. And don't, as Woody once did, forget your reel.

Wading also needs to be considered. I prefer to wade wet whenever possible, so I bike in a pair of old running shoes that double as wading boots and then as (soggy, admittedly) biking shoes. Woody, on the other hand, likes to stay dry so he packs a pair of "flyweight" neoprene waders, which fold down to about half the size of a loaf of bread, in his backpack.

Lastly, wear your fishing vest while you bike. It saves room in your backpack and is a great conversation starter with people you meet on the trail.

Be sensible in this. You don't want to overdo it. If you are unaccustomed to biking or to exercise in general, consult your doctor and you might want to consider getting a physical before you plunge in. And don't forget to wear your helmet. Cinders and dirt can hurt every bit as much as pavement if you take a spill.

Where to go

Pennsylvania is blessed with thousands of miles of biking trails and secluded roads that provide good access to quality waters. Here is a "Top 11" list of my favorites and several others that come highly recommended.

1. In the western part of the state, Oil Creek in Crawford and Venango counties is stocked with trout for a distance of 27 miles and is also a fine bass fishery. The

best place to bike, and to fish, is the 13.5-mile stretch that flows through Oil Creek State Park. A 10-mile-long paved bicycle trail runs through scenic Oil Creek Gorge. If you want to try biking and angling before buying a bike, this is a perfect spot to do it, because trail users may rent bicycles at the old Egbert Oil Office in Petroleum Centre. Trail heads can be found at Petroleum Centre and Drake Well Museum, which is operated by the Pennsylvania Historical and Museum Commission. More information is available by calling Oil Creek State Park at (814) 676-5915.

2. At Moraine State Park (Butler County), a paved seven-mile bicycle trail winds along the north shore of 3,225-acre Lake Arthur, which contains muskellunge, northern pike, tiger muskies, stripers, largemouth bass, walleyes, channel catfish, black crappies and bluegills. A bicycle concession is located at the marina restaurant from Memorial Day weekend to Labor Day. More information is available by calling Moraine State Park at (412) 368-8811.

3. The Department of Conservation and Natural Resources Bureau of State Parks has developed bike trails in several state parks. These are "Class I: Bikepath" trails for the most part, which are "trails completely separated from motor vehicle traffic, and conflicts with pedestrians, equestrians and motor vehicles are limited."

In Ohiopyle State Park (Fayette County), 28 miles of an abandoned railroad right of way that parallel the Youghiogheny River between the Ramcat parking area near Confluence and the towns of Connellsville/Dunbar have been converted to a smooth, hard-surfaced trail for bicycling. Rental bicycles are available. More information is available by calling Ohiopyle State Park at (412) 329-8591.

4. When I later moved near Whipple Dam State Park (Huntingdon County), I discovered Laurel Run, a fine early season trout stream. A dirt road parallels Laurel Run from Whipple Dam through Rothrock State Forest and leads to the ski area south of Boalsburg and State College. No trout are stocked in the upper reaches of Laurel Run, but I biked and fished my way to many beautiful wild brookies in sections of the stream so tiny that you could leap across without getting your feet wet. Whipple Dam State Park lake, 22 acres, contains bass, sunfish and pickerel.

5. The decade I lived in State College made me an ardent fan of Centre County's Spring Creek. Spring Creek in the Fisherman's Paradise area, a one-mile no-harvest, fly-fishing-only stretch, can be biked and fished easily.

6. Another good area is the undeveloped wooded section owned by Rockview State Penitentiary, where a dirt road provides biking and hiking access.

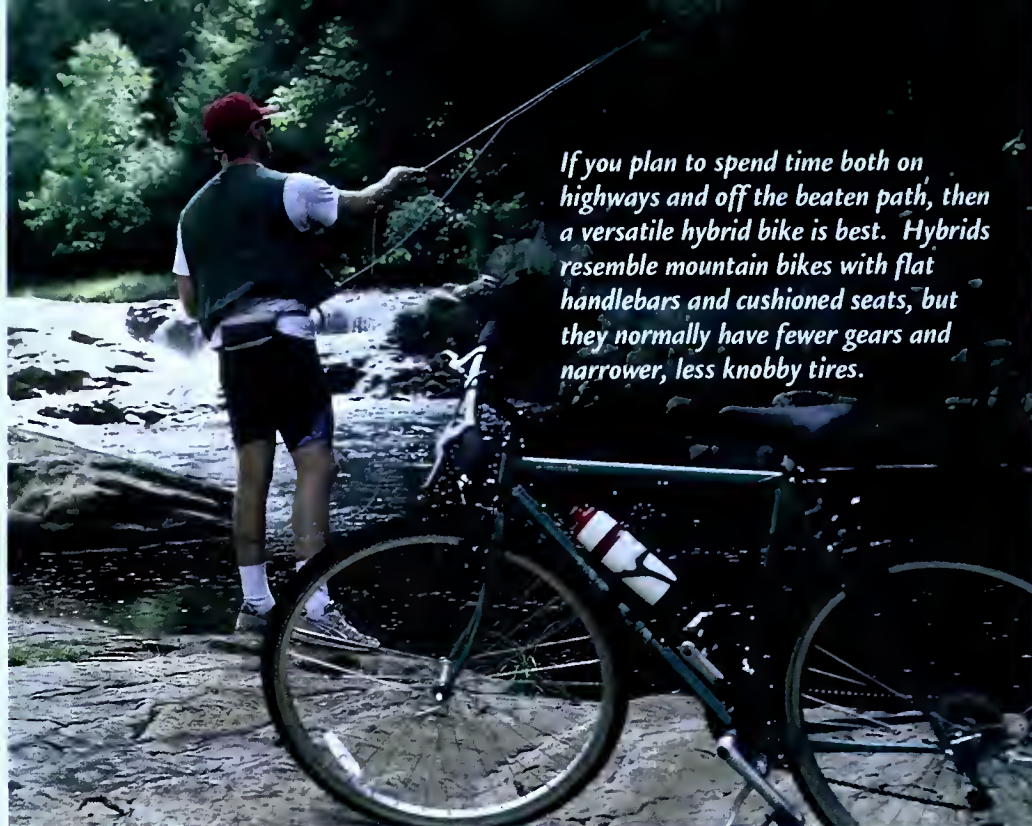
7. Grays Run in Lycoming County is my nominee as the state's undiscovered fishing treasure. Much of this small tributary of Lycoming Creek is in the Tiadaghton State Forest. It is paralleled by a good dirt road that is level and perfect for biking, but Grays Run is so secluded that the last time I fished there, not a single car went past in four hours. The stream is off Route 14, three miles north of the intersection with Route 15. A 2.5-mile section of the stream is restricted to fly fishing.

8. One of my regular stops is the West Branch of Fishing Creek in Columbia and Sullivan counties. The upper reaches of the stream, above Central and Elk Grove, are on State Game Lands 13. After crossing Painter Run, the main road turns away from the West Branch. You can park here and bike up the gated forest road that follows the stream to its headwaters. I've enjoyed many relaxing days on this gentle stream, which is unstocked but holds both brook and brown trout.

9. Another terrific biking and angling area in hard-coal country is Bowman Creek (Luzerne and Wyoming counties). Upstream above Noxen and Stull, an old railroad bed follows Bowman to its headwaters on North Mountain. It's a pleasant, leafy ride and the stream's headwaters contain a decent number of wild brook trout with an insatiable appetite for Hare's Ear Nymphs. If you take a left at the end of the railroad grade road, you'll head downhill and soon find yourself at Mountain Springs Lake, a beautiful and secluded impoundment that is stocked with trout.

10. The Lehigh River (Luzerne and Carbon counties) remains my favorite spot. The crown jewel of the 4,548-acre Lehigh Gorge State Park is the 24-mile cinder trail constructed on an abandoned railroad bed that follows the river. Parking and access areas can be found at White Haven, Lehigh Tannery, Rockport, Leslie Run and Jim Thorpe. The trout fishing in the Lehigh can be surprisingly good. I've caught as many as 30 small brookies on an Elk Hair Caddis in a single afternoon in mid-summer. Angling pressure drops sharply after Memorial Day, making this a perfect summer and fall refuge. More information is available by calling Lehigh Gorge State Park at (717) 427-8161.

11. In the southeast, Tulpehocken Creek in Berks County not only offers good fishing, but also tourist attractions including the "Red Bridge" covered bridge at the lower end of the



If you plan to spend time both on highways and off the beaten path, then a versatile hybrid bike is best. Hybrids resemble mountain bikes with flat handlebars and cushioned seats, but they normally have fewer gears and narrower, less knobby tires.

special regulations area (delayed harvest, artificial lures only for 3.8 miles).

A park provides biking and hiking trails. However, be warned that fishing pressure can be very high on this stream, and because of its nearness to Reading, it is not a choice for a wilderness experience. It is, however, perfect for an easy, short bike outing and the fishing is first-rate.

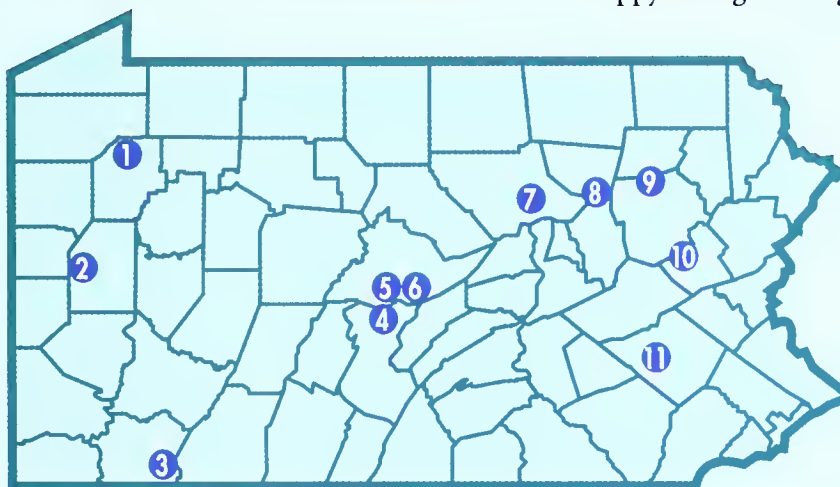
For general information on Pennsylvania state parks, call 1-800-63-PARKS or view the Bureau's World Wide Web homepage at <http://www.parec.com/statepks.htm>. The bureau's Rails-to-Trails World Wide

Web homepage is <http://www.dcnr.state.pa.us/dcnr/deputate/pksfor/stpks/r2thome.htm>.

One caveat: All trails aren't open to bikes, so be sure to stay on designated bike trails or roads.

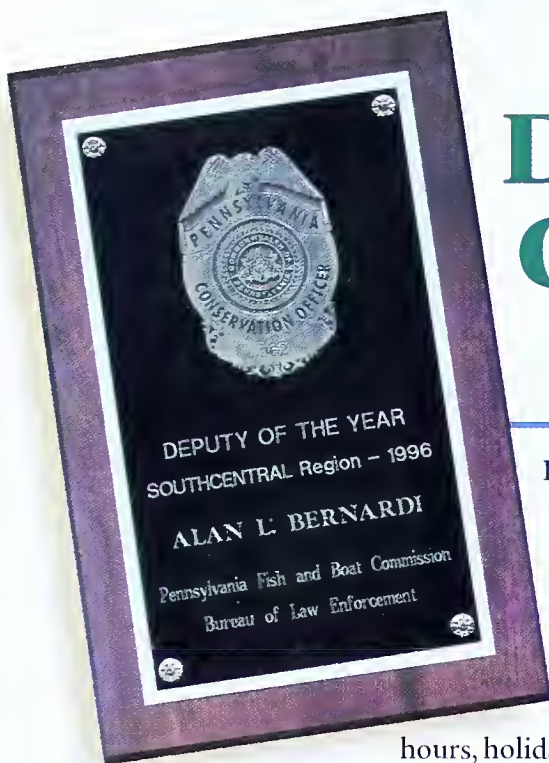
There's also some good biking and angling news to look forward to as well. According to a park ranger at Kittatinny Point in the Delaware Water Gap National Recreation Area, a 25-mile-long biking trail on the Pennsylvania side of the Delaware River is scheduled to open this summer.

Happy biking and angling!



Fishing and Biking Top 11 Picks

1. Oil Creek, Oil Creek State Park, Crawford and Venango counties.
2. Lake Arthur, Moraine State Park, Butler County.
3. Youghiogheny River, Ohiopyle State Park, Fayette and Somerset counties.
4. Laurel Run, Whipple Dam State Park, Huntingdon County.
5. Spring Creek (Fisherman's Paradise), Bellefonte, Centre County.
6. Spring Creek near Rockview, Centre County.
7. Grays Run, Tiadaghton State Forest, Lycoming County.
8. West Branch of Fishing Creek, Columbia County.
9. Bowman Creek, Luzerne and Wyoming counties.
10. Lehigh River, Lehigh Gorge State Park, Luzerne and Carbon counties.
11. Tulpehocken Creek, Berks County.



Deputy Waterways Conservation Officers of the Year *by Jeff Bridi*

Deputy Waterways Conservation Officers (DWCO) perform specialized law enforcement work in fisheries conservation and watercraft safety. Officers work long, varied

hours, holidays and weekends, in all kinds of weather and in rough terrain. DWCOs receive a small allowance for some expenses, but not for all expenses, and they are otherwise not compensated for their work.

DWCOs were recognized in their regions in annual awards presentations for the first time in 1997. The idea was offered by Assistant Regional Supervisor (Southcentral) Guy Bowersox. The 1996 awards were made in individual regional meetings held earlier this year.

DWCOs are nominated by any fulltime officer or deputy. All nominations in the region are reviewed by regional committees of Fish & Boat Commission Bureau of Law Enforcement and Bureau of Fisheries personnel. DWCOs are awarded attractive plaques for their dedicated hard work. The award also carries the distinction of knowing that officers were chosen by their peers.

Here are the 1996 DWCOs of the Year.



Northwest Region **Donald Benczkowski,** **Central Erie County**

Nominated by: WCOs Nestor, Caretto and Bowser; and DWCOs Hershelman, Hunter, C. Bowser, Reed, Banka, Benincase, Clement, English and McDowell.

Don has been a deputy officer since 1988. He is married (Kathy) and has two sons. He is employed as a Special Investigator by the PA

Department of Environmental Protection. He was nominated as Deputy of the Year because of his diligent efforts as a deputy officer; he served over 600 hours last year. In addition to fish and boat law patrol, he participated in outdoors shows, public education programs and radio and television programs.



Regional Manager Paul Swanson (left) and DWCO Howard Ludwig

Northcentral Region **Howard Ludwig, Lycoming County**

Nominated by: WCOs Pete Mader and Larry Dvorshock.

Howard was commissioned as a deputy officer in 1974. He is married and has four children (two sons and two daughters). He is employed at Jersey Shore Steel and is actively involved in the Tiadaghton Sportsmen's Club. He was nominated because of his dedicated service to the Commission and in particular for the assistance he provided to WCO Mader who in 1996 was temporarily covering two counties. Without Howard's assistance, Pete would not have been able to accomplish the necessary work.



DWCO William Kopar (left) and Commission Law Enforcement Division Director Ed Manhart

Southwest Region **William Kopar, Allegheny County**

Nominate by: WCO Greiner and DWCO Pate.

Bill has been a deputy officer since 1988, originally serving with WCO Mike Wheale and currently working with WCO Gerald Greiner. He is engaged to be married to Jennifer Brown. Bill is employed at Metplas, Inc., as a shift supervisor. He was nominated as Deputy of the Year because of the outstanding service he has provided as a deputy officer. Bill enjoys presenting programs to groups of young people, especially Boy Scout groups, and is committed to protecting the environment.



DWCO Alan Bernardi (left)

Southcentral Region

Alan Bernardi, Dauphin County

Nominated by: WCOs Mechling and Geisler, and DWCOs Books, Deppen and Scott.

Alan was commissioned as a deputy officer in 1992. He is married (Donna) and has a son and a daughter. He is self-employed. He was recognized for the extra effort that he gives in boating-under-the-influence (BUI) enforcement. He has taken additional training on his own to detect persons more effectively who may be under the influence. Alan also assists with teaching BUI enforcement techniques to WCOs and WCO trainees.

Northeast Region

John (Jack) Osborne, Wayne County

Nominated by: WCOs Qualters, Triol and Carey; and by the deputies in districts 3069, 3070 and 3080.

Jack was commissioned as a deputy officer in 1982. He has been married (Pat) for 47 years, and has three children and four grandchildren. He is retired. He was noted for the many hours of work he gives to the Commission, averaging between 30 and 50 hours a week year-round. Jack is extremely courteous when dealing with the public and other officers. He is always willing to do extra duties such as help with education programs and sportsmen's club meetings. He provides much assistance to the PA Game Commission and has been recognized by that agency for his efforts.

DWCO Jack Osborne (left in photo)



Southeast Region

Stanley Long, Lehigh County

Nominated by: WCO Fred Mussel.

Stanley has been a deputy officer since 1947 and has faithfully served the Commission for 50 years, longer than any deputy. He has been married (Mary) for 50 years, and has two sons and two grandchildren. He is retired. Stanley was recognized for the dependable service he has provided to WCO Mussel for the past 27 years. He is respected by everyone he meets, including those he catches violating the law. For a closer look at DWCO Long, see page 45 of this issue.

DWCO Stanley Long (left)


Other DWCO awards

Stan Hastings, Cameron County

Stan was honored at the Northcentral Region Deputy Meeting in March 1997 for his special efforts in public education. Stan conducts many programs on timber rattlesnakes every year on behalf of the agency. His programs are very interesting and because of his years of experience and knowledge quite informative as well. He has done much to dispel some of the myths that the public has about snakes through his programs to schools, civic organizations and other groups. Stan is a retired Waterways Conservation Officer and he resides in Emporium.



Lloyd Hartman, Lebanon County

Lloyd retired as an active deputy at the end of 1996 and was presented with a plaque in recognition of his 45 years of service. During that time he has served with many different conservation officers and has seen many changes in the agency. Lloyd could always be counted on for dedicated service. He is a retired police officer from Spring Creek Township, Berks County, and resides in Lebanon. 



33 Summertime Places to Catch Stocked Trout



by Mark A. Nale

12 1/2-inch rainbow trout

A beautiful morning greeted me as I waded into the cool water of Marsh Creek. After missing a few trout, I settled down and landed a stocked brown of 9 inches. I released that fish and then missed two more from the riffle above. In the next pool, a larger trout struck hard and broke my line. A green-backed heron seemed to squawk a laugh in my direction as I examined my frayed mono. "Same to you, buddy!" I muttered as it flapped away. I wished the heron the same kind of fishing luck that I was experiencing.

As the sun climbed above the forested ridge, the sky, and my luck, brightened. Even after my slow start, by the end of the first hour I had recorded five stocked and four wild trout in my vest pocket notepad. Within another 30 minutes, I added stocked browns of 10 1/2 and 10 inches to the list.

One would consider this fishing a pretty good beginning for an April morning, but it wasn't April or even May. These stocked trout were caught last July on a heavily fished Centre County stream. Although I mainly pursue wild trout, I planned this summer outing with the expectation of catching both wild and stocked trout.

I didn't always have this expectation. The summer trout fishing trips of my teenage years usually focused on native brookies or wild browns. I rarely considered stocked trout. After all, except for a few stragglers, stockies had all disappeared into anglers' creels by late May, right? Contrary to my beliefs, we would occasionally stumble across pockets of stocked trout, even during July and August.

If your trout rod is active during the summer, I'm sure that you have also fished through pools or runs that held stocked trout. What you may not have realized is that the presence of these stocked trout is not an accident. As my experience grew, and I started to keep detailed records of my angling, I noticed that the same streams

and often the same pools were the ones where I could always count on tangling with a few stocked trout, even during the middle of the summer. Recent summer and fall outings to local stocked streams such as Bobs, Marsh and Bald Eagle creeks often end with five or more stocked trout. One November trip yielded an amazing 39!

Several factors contribute or often combine to determine where stocked trout can still be found in July. I'll share what I've learned, as well as the knowledge of several Commission area fisheries managers. If you know what to look for, you can locate stream sections in your area that regularly hold stocked trout throughout the summer. Furthermore, check out the list of streams on page 17 to help you get started.

Early revelation

One of my first discoveries occurred on a little Bedford County stream that I grew up along. I noticed that the same three pools held stocked rainbows and browns each summer, while most of the remainder of the water was troutless. My brothers and I learned that summer fishing the remainder of the "bottom," as we called it, was a waste of time, and we just headed for those pools.

Although the three pools had good cover, we didn't notice anything special until one day I knelt down to rinse my hands in a puddle off to the side of a gravel bar. *Brrr!* The stream was running at 69 degrees, but the water seeping through the gravel was 15 degrees colder. Now we knew what attracted the stocked trout—cooler water!

Water temperature

Every area fisheries manager (AFM) echoed my discovery. Trout need suitable summer water temperatures if they are to survive. Ron Lee, who manages the Upper Allegheny River Basin, elabo-

rated on the subject. "The key characteristic for trout survival through the summer is cool temperatures. Several consecutive warm water days of 75 degrees or above are generally lethal or result in out-migration of trout to habitat providing cooler temperatures."

Cooler water can be located with a thermometer, but a little common sense can narrow down the places to check. Here are a few general guidelines to follow. The headwaters of most stocked streams are cooler than the lower sections. Narrow, tree-lined channels with fast-flowing water tend to keep cooler temperatures. Limestone streams that have a regular influx of spring water also remain cool.

Streams below dams can be too warm (top discharge) or cooler if the release is from the bottom of the dam. AFM Craig Billingsley cited the tail-race of Shenango Lake in Mercer County as a good place to check if rainfall has been normal or above. AFM Dave Arnold recommends Pohopoco Creek (Carbon County) in the tailwaters of Beltzville Dam, where cold-water discharges help to hold many stocked trout into the summer. Another stream benefiting from a cold-water discharge is Pike County's Lackawaxen River. Power-generating discharges from the PP&L plant near Kimble let stocked trout hold into the summer. Arnold suggests that you time summer angling with the early morning and evening discharges.

Even if only a few wild trout are found year-round in a stocked stream, it probably has suitable summer water temperatures to hold stocked trout. Stocked sections near Class A Wild Trout Areas are also good bets. Arnold recommends two Northampton



Brook trout from Centre County's Marsh Creek

County waters, Monocacy Creek below Route 22 and Bushkill Creek in Easton.

Some stocked trout also move into cooler tributaries. Their confluence with the stocked water is a good place to prospect. Last summer, AFM Bruce Hollender electrofished a good number of stocked fish in Centre County's Bald Eagle Creek (downstream from Milesburg and its confluence with the cooler, Class A Spring Creek). Again, according to Hollender, cool water is number one!

Other factors

Habitat, special regulations, stockings, and angling pressure are other factors that influence the number of stocked trout available in the summer. Let's look at each.

Cool water alone won't protect stocked trout from predators or anglers. Trout need good habitat. AFM Larry Jackson cited the "deep pools, undercut banks, logjams and boulders" as reasons why Bedford County's Yellow Creek, between Loysburg and Hopewell, offers stocked trout throughout the summer. For more detailed information on Yellow Creek, see the January 1996 *PA Angler*.

"Good habitat" was mentioned by AFM Bob Moase as one of the reasons that trout hold in Fishing Creek (Columbia County) from Benton downstream 4.6 miles. Fishing Creek can be reached from SR487. Ron Lee says that the "nice pools, woody debris, and overhanging brush and trees all aid in prolonging the stocked trout fishery" of Caldwell Creek downstream from the Delayed-Harvest, Fly-Fishing-Only area and in Spring Creek near the village of Spring Creek. Both of these streams are in Warren County.

Special regulations such as Catch and Release or Delayed Harvest



Sinn-Portage Creek, Cameron County, north of Emporium off Route 155



*Marsh Creek,
Centre County*

also figure heavily into the stocked trout equation. The Commission's innovative Delayed-Harvest regulations make it unlawful to harvest any trout before June 15. Between that date and Labor Day, the creel limit is three per day. This helps ensure that stocked trout are around during the summer. According to Loysburg angler Harry Guyer, you can locate a few stocked trout in the Fly-Fishing-Only, Delayed-Harvest section of Yellow Creek any summer day. Larry Jackson suggests the Artificials-Only, Delayed-Harvest area of Falling Spring Branch in Chambersburg. Without a doubt, the largest selection of trophy-sized stocked trout that I've ever fished over was on the Catch-and-Release section of the Yellow Breeches between Boiling Springs and Allenberry.

The use of Refuge Areas on streams such as Sugar Run, a tributary to the Allegheny Reservoir in Lee's area, or Wykoff Run in southern Cameron County, also helps spread out the catch so that all of the trout are not harvested immediately following stocking.

The number of trout stocked, the timing of inseason stockings, as well as the species stocked, all greatly influence how many stocked fish will be around in July. According to AFM Mike Kaufmann, from the southeast corner of the state, late inseason stockings and the addition of cooperative nursery trout make for more summer trout in the East Branch of Brandywine Creek (Chester County) and Tulpehocken Creek (Berks and Lebanon counties). Kaufmann suggests the Dorlan upstream to Glenmoore section of the Brandywine, which is closely paralleled by Route 282. The Tulpehocken from Charming Forge upstream to Myerstown, both on Route 422, is the best section to find stocked trout in the summer, according to Kaufmann. Jones Mill Run in Somerset County and Marsh Creek, which was mentioned earlier, also benefit from a late-May inseason stocking each year.

Here's a real tip for summer trout. Kaufmann revealed that Hay Creek (Berks County, along Route 82 between Birdsboro and Geigertown), the Tulpehocken, and French Creek (Chester County, Pughtown to Knauertown/St. Peters, Route 23) "frequently receive additional Commission trout if unallocated trout remain in the hatcheries at the end of the normal stocking season," which is the first week of June.

Even the species stocked should be considered. With other factors equal, brown trout are the least catchable and tend to persist into

summer. Rainbows are next on the list. AFM Lee didn't recommend any streams stocked with brook trout because of the "higher harvest rates of stocked brook trout." If the trout are caught early, they just won't be around in July.

Lastly, angler pressure is also important, but hard to explain or predict. During summer electrofishing surveys, Hollender has turned up good numbers of stocked trout in out-of-the-way sections of Sinnemahoning-Portage Creek (Cameron County near Emporium). He thinks that more popular streams nearby lessen the pressure on this fishery. Sinn-Portage Creek also has a late inseason stocking. AFM Moase suggests that light fishing pressure on Starrucca Creek (Susquehanna County) from Lanesboro 7.4 miles upstream, with access from SR1009, is one of the reasons that stocked trout are available in that water into the summer. Potter County's Oswayo Creek (from Clara Creek to Sharon Center) is a good bet. Ron Lee says that Oswayo Creek's size "and the abundance of fine wild trout fishing upstream and in the general area reduce pressure on stocked trout by late spring, allowing their presence throughout the entire summer."

Catching them

Remember that these stocked trout survived into summer because no other angler or predator caught them. Below-average angling skills aren't going to bring them to net in July, either! Fish smart!

The first step in fishing smart is not being seen. Take advantage of streamside cover, wear dull-colored clothing, and wade carefully. The usually low, clear water of summer is not very forgiving. Cast as far ahead of yourself as possible. Summer trout are spooky.

The second step is fishing natural and using a light leader or tippet. Remember that these survivors may have seen hundreds of other offerings. What are the summer trout eating? It's certainly not corn, salmon eggs, or some kind of commercial fake! Normal summer trout foods include minnows, grasshoppers, Japanese beetles, caterpillars, ants, small crayfish and crickets. A properly presented earthworm still works, too. Remember to use a small hook and a light leader.

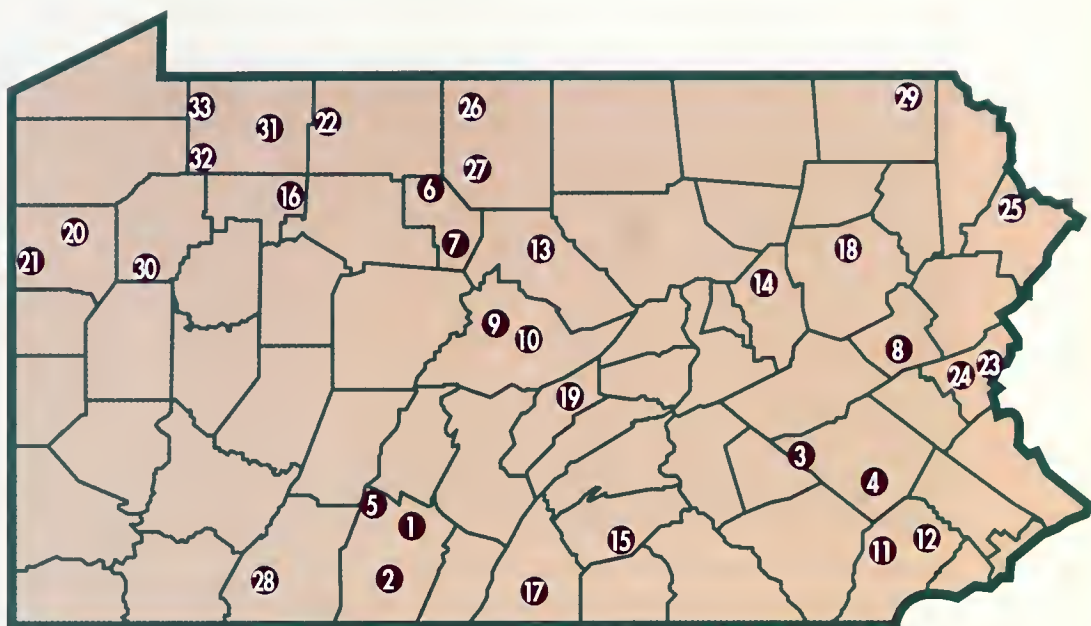
Fly anglers are lucky, because they have many different offer-

ings that imitate summer terrestrial insects. Ant, beetle, inchworm and hopper flies work well on the surface. For the spin-fishing angler, in-line spinners and small spoons (minnow imitations), can also produce stocked trout in the summer.

The third step is moving away from bridges and other stocking (high pressure) points. Seek out logjams and brushy stream areas. Fish close to the cover. Every now and then I'm surprised when a summer-surviving palomino trout darts from under a brush pile to slam my offering.

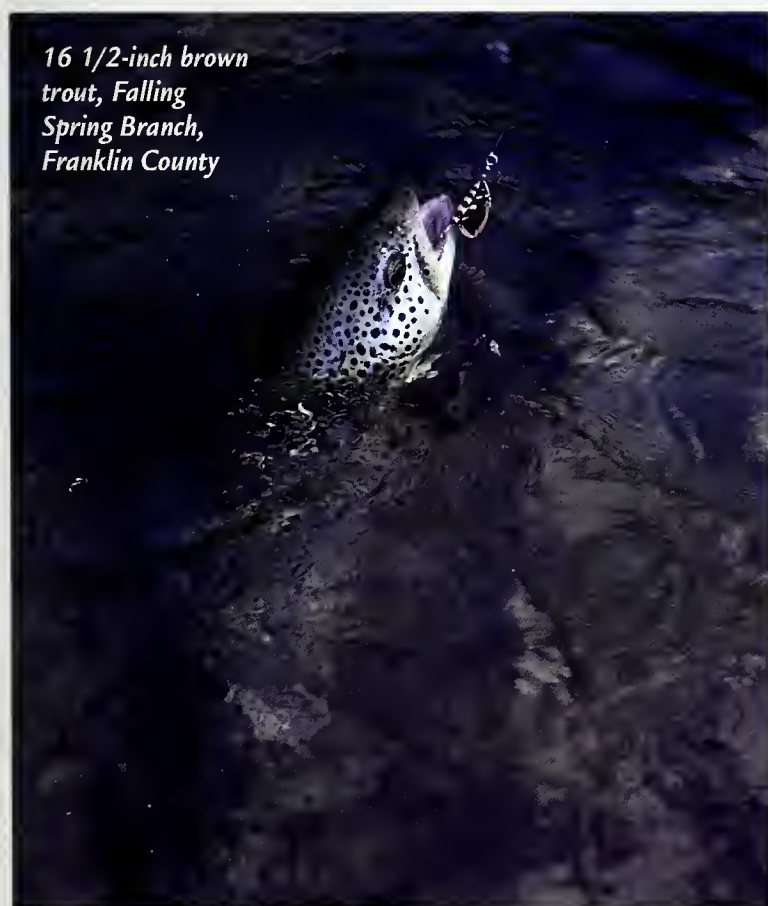
The fourth and final step of fishing smart is to take advantage of higher flows and the few cooler days of summer. Experience tells me that the slightly higher flows (not a flood) that follow a summer rain really turn the trout on.

Also try to take advantage of cooler early morning water temperatures. Trout hit best when the water is in the low 60s or high 50s. A cool night following an over-cast day might mean cooler water and actively feeding trout the following morning.



33 Summertime Places to Catch Stocked Trout

County	Stream	Location
1. Bedford	Yellow Creek	Loysburg to mouth, Route 26
2. Bedford	Cove Creek	Ottown to mouth near Ashcom
3. Berks/Lebanon	Tulpehocken Creek	Charming Forge to Myerstown
4. Berks	Hay Creek	Birdsboro to Geigertown, Route 82
5. Blair/Bedford	Bobs Creek	Near Pavia & Blue Knob St. Park
6. Cameron	Sinn-Portage Creek	Route 155 north of Emporium
7. Cameron	Wykoff Run	Quehanna Wild Area, Wykoff R. Rd.
8. Carbon	Pohopoco Creek	Below Beltzville Dam, E of Lehigh
9. Centre	Marsh Creek	Above confluence with Little Marsh
10. Centre	Bald Eagle Creek	Below Milesburg, Route 150
11. Chester	Brandywine Cr., E. Br.	Dorlan to Glenmoore, Route 282
12. Chester	French Creek	Pughtown to Knauertown/St. Peters
13. Clinton	Hyner Run	Route 120 into Hyner Run St. Park
14. Columbia	Fishing Creek	Benton downstream 4.6 miles, access from SR487
15. Cumberland	Yellow Breeches	Dillsburg to Huntsdale
16. Elk/Forest	Wolf Run	Route 66 south of Kane
17. Franklin	Falling Spring Br.	Chambersburg upstream and the DH Artificial Lures Area
18. Luzerne	Harvey Creek	West Nanticoke upstream 5 miles, access from SR29
19. Mifflin	Kishacoquillas Creek	Reedsville section, off Route 322
20. Mercer	Cool Spring Creek	DH Artificial Lures Area west of Mercer, SR2014
21. Mercer	Shenango Lake tailrace	North of Sharon
22. McKean	Sugar Run	Allegheny National Forest
23. Northampton	Bushkill Creek	Easton
24. Northampton	Monocacy Creek	Illicks Mill Park downstream through Bethlehem
25. Pike	Lackawaxen River	Below Kimble & PP&L discharge
26. Potter	Oswayo Creek	Clara Creek to Sharon Center
27. Potter	Southwoods Branch	East of Austin
28. Somerset	Jones Mill Run	Laurel Hill State Park
29. Susquehanna	Starrucca Creek	Lanesboro upstream 7.4 miles, access from SR1009
30. Venango	Little Scrubgrass Creek	Sutton Mill north to Allegheny River
31. Warren	Browns Run	Trib. to Allegheny R. SE of Warren
32. Warren	Caldwell Creek	From mouth to FFO Area
33. Warren	Spring Creek	Trib. to Brokenstraw Creek



16 1/2-inch brown trout, Falling Spring Branch, Franklin County

If you're going after stocked trout this summer, look for cool water, cover, and areas with less fishing pressure. Be sure to check the Commission *Inseason Trout Stocking Schedule* for streams that are stocked in late May or early June. The *Inseason Trout Stocking Schedule* appears in the March/April 1997 *PA&B*. Trying out the streams mentioned in this article, using the information to lead you to your own discoveries, and by fishing smart, you should be well on your way to locating and catching stocked trout this summer.



The author wishes to thank Commission Area Fisheries Managers Craig Billingsley, Ron Lee, Bruce Hollender, Bob Moase, Dave Arnold, Mike Kaufmann and Larry Jackson for their invaluable assistance with this article.

Stoneflies

by Karl Blankenship

When Edwin Masteller set out to inventory Pennsylvania stoneflies several years ago, he was skeptical that he would find much new information. He figured that the Commonwealth, having been settled for more than three centuries, would most certainly have been examined for an insect so closely linked to high-quality trout streams and prominently featured in fly-fishing books.

But that was not the case. A report was recently completed by Masteller, a professor emeritus of biology at Penn State, Erie. He found dozens more species of stoneflies than were previously reported in the state, and he lists five new stonefly species.

Altogether, his report identifies 134 stonefly species in Pennsylvania. The most comprehensive previous survey found only 90. And Masteller considers it likely that another 40 may yet be found in the state. He plans to put his information on the Internet's World Wide Web so others can review its findings and report additional stonefly findings.

"Part of my goal in doing this was just to act as an initial effort: This is what we know at this point," he said. "If we keep looking, we may find them."

Masteller's work is more than just an inventory that puts dots on a map, indicating streams where certain stoneflies are found. With financial support from the Wild Resource Conservation Fund, which raises money for scientific and educational projects related to Pennsylvania's nongame wildlife through voluntary checkoffs on the state income tax form and the sale of special license plates, the Fish and Boat Commission has sponsored a series of statewide surveys of aquatic insects. Besides stoneflies, other surveys are looking for caddisflies, mayflies and crane flies. "I envision having each of those surveys as a piece of a puzzle that will let us start to pinpoint areas of biodiversity and species abundance in Pennsylvania," said Andrew Shiels, Fish and Boat Commission Nongame and Endangered Species Unit Leader.

Eventually, information from these surveys will be placed on maps, along with information about water quality and fish di-

versity. "What I think will become obvious very quickly is that there will be hot spot areas in Pennsylvania that stand out as gems of biodiversity or species richness," Shiels said. "Then you can use that information to target those streams and give them the protection and the recognition they deserve."

Stoneflies may be particularly valuable for that purpose. Even though there are exceptions, most species of stoneflies typically require better water quality than mayflies or other aquatic insects. And some of the streams in Masteller's survey, Shiels noted, had dozens of stonefly species living in them. "That reflects the diversity of that stream and the quality," Shiels said.

Diversity means not just lots of insects, but probably also lots of fish to eat them. "It makes perfect sense that if a stream has the right water quality and the right habitat to support a diversity of critters, then it should also have all the ingredients to support healthy populations of the predators of the critters," Shiels said.

But he cautioned that, in some cases, finding lots of stonefly species in a particular stream may merely indicate that it has been more intensively studied than others. That points to the need to fund additional surveys in the future, Shiels said.

Even though some of the first descriptions of North American stoneflies were made by early scientists in Pennsylvania centuries ago, many of the state's thousands of miles of streams have never been comprehensively examined. Like most insects, part of the reason for the lack of study is that, although they are a critical component in stream ecology, they typically are not viewed as economically important as crop-devouring pests. Also, a succession of different stonefly species may be found throughout the year. Even during the coldest winter months, numerous species emerge from streams by the hundreds, changing from water-dwelling nymphs to flying adults. As a result, unless we can monitor a stream all year, we are likely to miss some species.

So to some degree, diversity is also related to areas where a handful of stonefly aficionados have collected samples over time. "It depends on where the specialists are," said Jane Earle, a water pollution biologist with the state Department of Environmen-

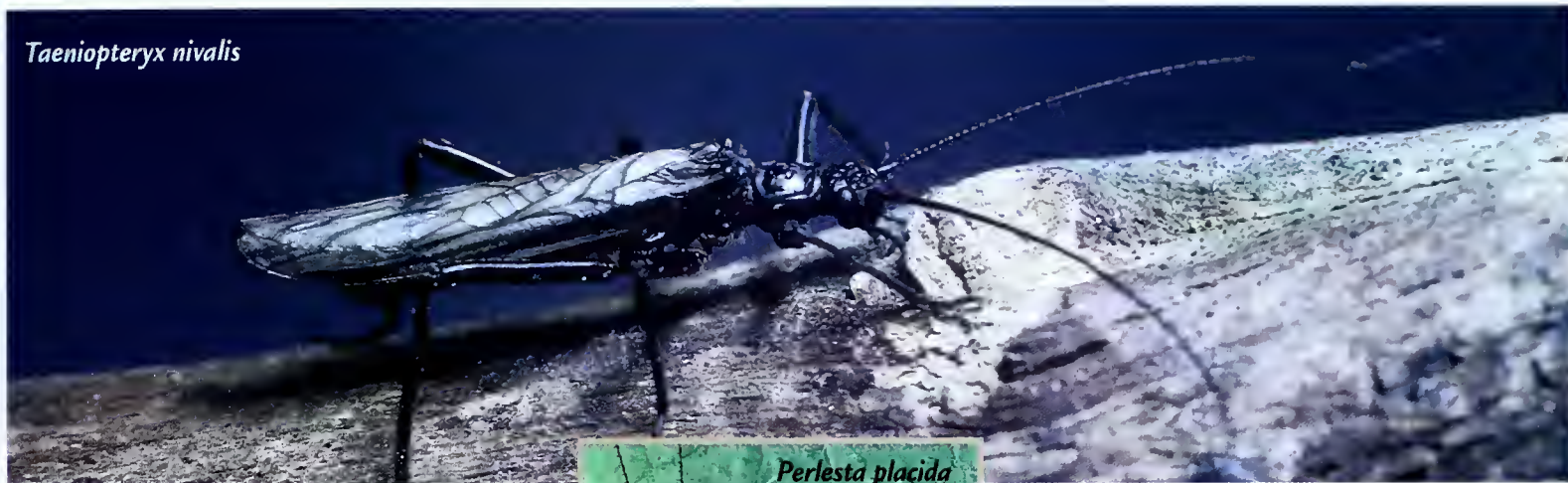


Peltoperla sp.



Pteronarcys dorsata

Taeniopteryx nivalis



tal Protection, who wrote a chapter about stoneflies in an upcoming book about Pennsylvania insects. Field work by such people has gradually helped to fill in some of the blanks on the map regarding stoneflies. In fact, the total number of stonefly species in North America recently passed 600. In Pennsylvania, findings by Earle and Scott Grubbs at the University of Pittsburgh added numerous species in Masteller's survey.

"It takes a lot of work," Earle said. "You have to be interested in looking at a lot of stuff, sometimes hundreds of individual insects. It takes a special kind of person to do it." Pennsylvania stoneflies can be divided into nine family groupings, but different species within those families typically cannot be identified in the field. Instead, it means looking at hundreds of individuals, one at a time, under a microscope in a lab.

Some people don't consider stoneflies economically important. Still, they play a vital role in a healthy stream, with various species consuming algae, detritus, plant material—or even other insects—before they in turn become food. Usually, that happens as the nymphs move to the surface and ultimately out of the water, where they become winged adults, albeit poor-flying ones.

Although some species live in warm water and can tolerate some amount of pollution, most species are associated with cold mountain streams with high amounts of dissolved oxygen. Because the nymphs live in the rocky substrate, mainly in riffles, they are particularly vulnerable to siltation. Other forms of pollution, such as runoff containing fertilizers, pesticides and other chemicals,



Perlesta placida

are also a problem. "If there are feedlots upstream, I don't even bother to look," Masteller said, "because I know there are likely to be few, if any, stoneflies present."

Most stoneflies live about a year, and most of that time is spent in the water in the nymphal, or immature, stage. As nymphs, various species of stoneflies molt between one dozen and three dozen times before they crawl out of the water, onto bridges, tree trunks or branches, where they transform into adults.

Adult stoneflies are different from other aquatic insects in that they communicate by tapping the end of their abdomen on logs or trees. These drumming sounds, though generally not loud enough to be heard in the field by humans, allow males and females to locate one another for mating. The female ultimately deposits the eggs onto the water surface.

Because adults spend their lives out of the water, usually in nearby vegetation, they leave the aquatic food chain and are not as closely associated with trout as, say, mayflies, which are present in the stream throughout their life cycle. "Mayflies have the richest history associated with them as it relates to the sport of fly fishing," said Greg Hoover, an avid fly fisherman and entomologist at Penn State University, who is working on a state-wide mayfly survey.

But using stonefly nymphs, instead of adults, as a pattern for flies is a different matter. "As much as I love mayflies, I do fish imitation stonefly nymphs because they are so effective," Hoover said. "Guys who are really good fly fishermen just hammer the daylights out of trout with stonefly nymph imitations." □



Allocapnia recta



Eccoptura xanthenes

Pinchot Lake Largemouths

by Seth Cassell

Located in northern York County, Pinchot Lake is one of the top largemouth bass lakes in southcentral Pennsylvania. Its 340 acres are located in Gifford Pinchot State Park, a popular recreation site about 15 miles south of Harrisburg.

If you were to just drive past Pinchot Lake, which is also referred to as Conewago Lake, you probably wouldn't be too impressed. During the summer, much of Pinchot's water becomes weed-infested, and the open water has a stained blue-green appearance from algae blooms. But lurking in the lake's murky water are lots of largemouth bass—some big ones, too.

Pinchot's fishery

In 1987, Pinchot Lake was added to the rolls of the new Conservation Lake program. In 1991, the Fish and Boat Commission began Big Bass regulations, and the lake was then managed under those regulations to specifically target largemouth bass.

According to Larry Jackson, Commission Area 7 Fisheries Manager, the regulations have worked well in increasing the overall health of the bass population and making more fish over 15 inches available to anglers.

"Pinchot has an impressive largemouth bass population," he says. "We have very high catch rates while carrying out electrofishing surveys. It's the best largemouth bass water in my management area for overall numbers of bass, as well as for bass over 15 inches."

In addition to largemouths, Pinchot also supports good populations of other gamefish. The Commission stocks juvenile muskellunge, catfish, hybrid stripers and walleyes. Bluegills and crappies can also be found in good numbers.

Structure

The primary source of cover for largemouth bass at Pinchot is undoubtedly aquatic vegetation. Anyone who has ever canoed across a weed patch there surely has seen the subtle water disturbances from fish darting in every direction.

Pinchot's Big Bass regs have helped the bass population.



An eutrophic lake, Pinchot is rich in nutrients, which set the scene for algae blooms and vast amounts of aquatic flora. Many of the nutrients come from agricultural activities, such as farm fertilizers that enter from runoff. Although weed cover is good for bass, there is a point at which it can be a detriment to the fishery and make it a nuisance for people to maneuver their boats.

So, to control weed growth, every three years during winter, the water is drawn down to kill rooted aquatic vegetation and limit the spread of aquatic vegetation.

Even after the winter draw-down, there is still plenty of vegetation cover for bass, so the draw-down does not have a negative effect on the lake's bass population, Jackson says.

Because aquatic vegetation occurs in shallow areas, bass can often be found in the coves around Pinchot's shoreline. They are attracted to these areas for several reasons. First, they provide shade from the intense sunlight of summer. Also, the bass take comfort in the security that the coves cover with vegetation. It not only allows them to hide from potential predators, but also to ambush unsuspecting prey. Furthermore, as water temperatures rise, the water temperature in shallow water under a thick mat of vegetation can be surprisingly cool.

Another good place to find bass is along the lake's channel. In early fall last year, I saw an angler pull in a largemouth about 22 inches while fishing there. Bass are attracted to the channel not only because of the edge created by the deep and shallow water, but also because in most places the channel edge is where the weed beds meet with open water. There, bass can hide in the weeds, watching the open water for prey.

Late summer, early fall fishing tactics

In my experience, late-summer and early fall are the best times to catch largemouths at Pinchot. Last year, I spent almost the entire summer fishing the lake. The fishing was so feverish that I neglected the local trout and smallmouth bass opportunities. And living only 5 miles from the lake, it was convenient for quick, evening sojourns.

Fishing success wasn't instant, though. It took several outings of getting skunked before I had a good idea of how to fish the lake properly in the hot weather. It can be daunting at times; the bass don't come easy. But it is a challenging and exciting place to go if you know a few things about fishing it.

I exclusively used a canoe during my Pinchot Lake fishing ventures. I did go once with a friend in his small bass boat, but

we couldn't maneuver around easily, and the trolling motor was constantly clogged with weeds. With all the shallow areas and aquatic debris, a canoe is an ideal craft for the lake. There were many instances when I was negotiating through areas that had less than 6 inches of water.

Anglers fishing Pinchot in the late-summer/early fall should concentrate along the "two edges" of the lake, as I like to call them. These areas are typically shallow, which is where the bass will be this time of the year. As biologist Jackson pointed out, the lake is still stratified, and the bass will be above the thermocline.

When I say "two edges," I'm referring to the edge created between the weeds and the shoreline and the edge between the weed line and open water.

In the heat of summer, most of the bass can be found close to the shoreline. As the season progresses into early fall, more can be found along the channel and the weed line.

Topwater lures are the most productive during this time. In fact, unless you're fishing the channel and open water, it's the only lure you can use!

Any type of large, top-water plug and popper works fine. I don't think color plays much of a role when fishing the weeds; they're so thick that the bass can't see the lure very well. Instead, they hone in on the vibrations and popping sound the lures make. The best weedless lures are those with the hooks turned upward. Tube-type mice and frogs are my favorites, and there are many brands on the market from which to choose.

Heavy tackle is essential at Pinchot. Don't think about using anything less than 12-pound test. Many anglers choose to go up to 20, but I don't think that's necessary, especially if you're fishing from a boat. Having a

matching reel and a stout, medium- or heavy-action rod is also important. Pinchot is no place for finesse fishing.

When fishing the weeds, look for bass to be near boulders, stumps, windfalls and open pockets. Stop your lure for five or more seconds every few yards. I get more strikes doing this than I do using a steady, methodical retrieve.

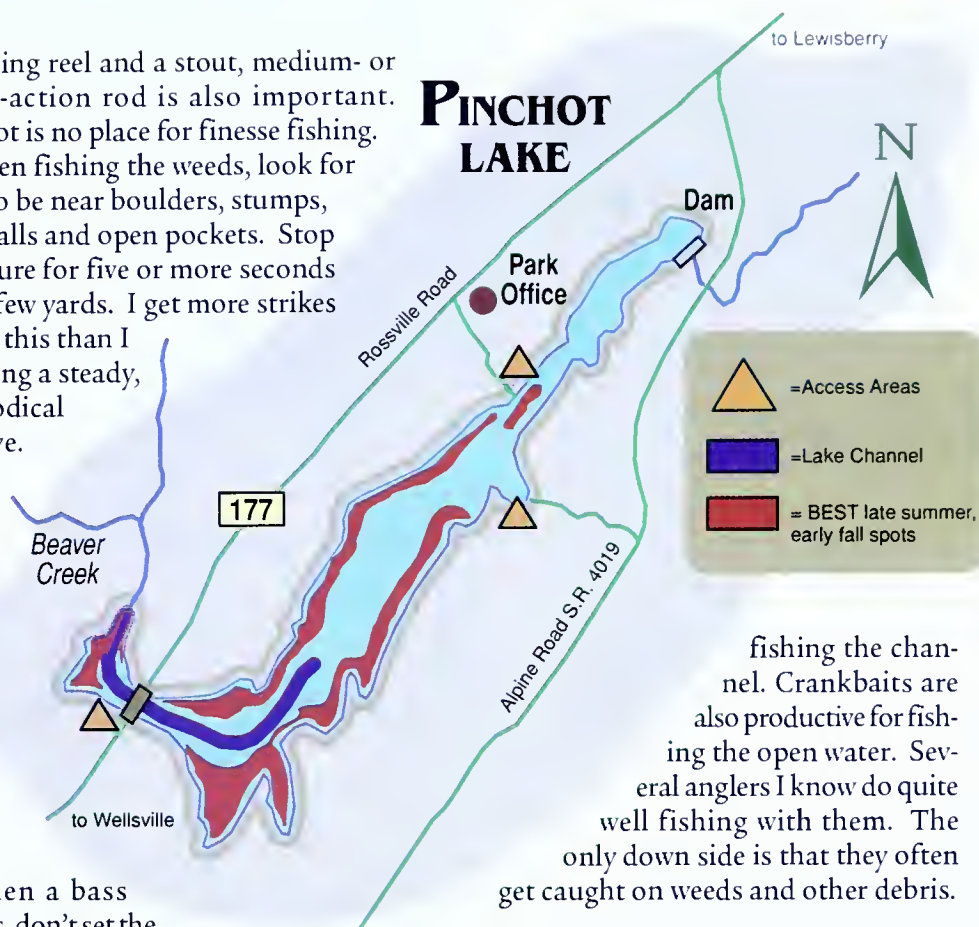
When a bass strikes, don't set the hook immediately. Wait a moment to allow the fish to get a good grip, and then give a strong hook set. You'll feel the bass move around a bit, and then it will stop, as it gets more tangled in the weeds. At this point, it is difficult to tell if the fish is still on, but keep steady pressure on the line. Slowly move your craft toward the fish, reeling in the slack line. Once you're close, try to horse the fish in. Be sure to have a net with you. It is difficult, and you'll lose more fish than you'll land, but that's the fun of fishing Pinchot!

Be ready to catch some real bruisers in the weeds, too. I rarely catch fish under 12 to 14 inches. Last summer, my father and I both caught bass over 20 inches within a couple of minutes of each other, using the same tactics I mentioned above.

When fishing the weed line along open water, more conventional tactics work, but it is still a good idea to use heavy tackle because you never know when a bass will head for the weeds.

Texas rigs with at least 6-inch worms or lizards work well, especially when

PINCHOT LAKE



fishing the channel. Crankbaits are also productive for fishing the open water. Several anglers I know do quite well fishing with them. The only down side is that they often get caught on weeds and other debris.

Best locations

Although I've caught bass in about every section of Pinchot, the upper half is definitely the best location. I particularly like fishing the waterfowl hunting area because of the abundance of weeds and other structure. Fishing is also good below the mouth of Beaver Creek, which empties into the impoundment.

The only place to avoid is the area near the dam, where the water reaches up to 3 feet. Although some of the shoreline structure near the deep water can be good, this is probably the least productive area in summer and early fall.

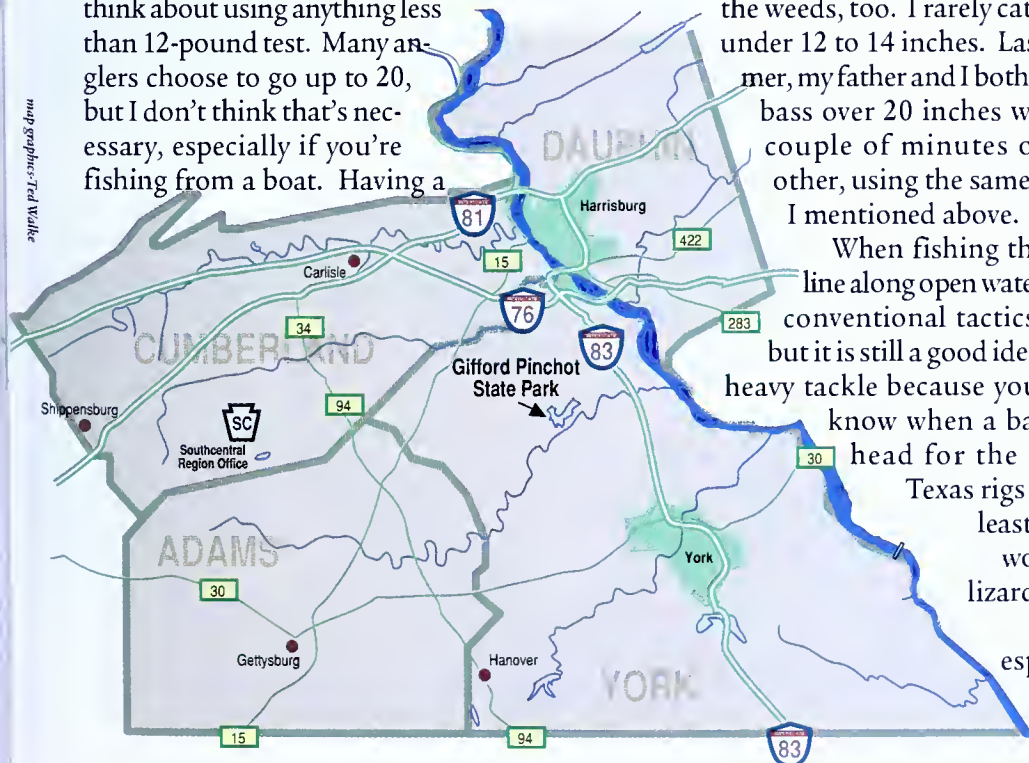
Lots of bass can be found in the dam's spillway, as well as many other species. Anglers can park at the bridge on Alpine Road, and walk back to the spillway. Live shiners are particularly productive here.

Best times

Even in September, bass still follow summertime habits. The best fishing occurs in the morning and evening, but don't overlook fishing Pinchot during the day. The heavy weed cover offers good shade in which the bass can stay cool, and they can often be caught on topwater lures even in the heat of the day. The most fervent activity occurs at twilight, however.

This summer, when you get the urge for some largemouth bass action, remember Pinchot!

map graphics: Ted Walker



SMART

Angler's Notebook

by Carl Richardson

illustrated by Ted Walke

Panfish on the Fly

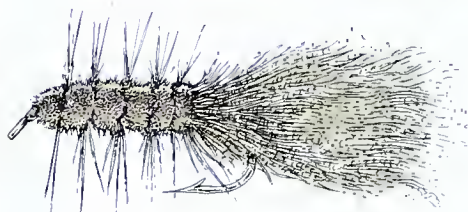
Insects and other small invertebrates are a big part of many panfish diets. Often, when they are keyed in on these prey items, panfish will take only flies. Unlike trout, though, they aren't too picky (although there are rare exceptions).



Gold-Ribbed
Hare's Ear



Beadhead



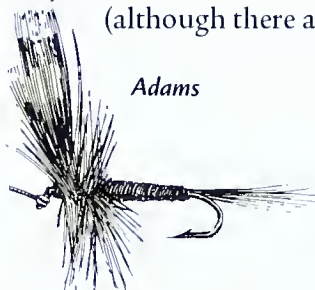
Woolly Bugger

Wet flies

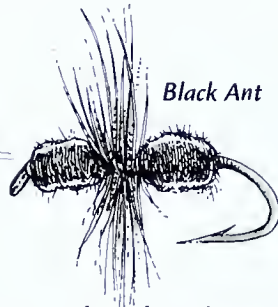
Woolly Bugger. No angler should be without this fly in size 6 and smaller. Color selection should include brown, black, olive, purple and even chartreuse. Panfish will eagerly take this buggy-looking fly. They probably think it is an immature nymph or larva, or a small baitfish.

Nymphs. Patterns such as the Gold-Ribbed Hare's Ear, beadheads, or any nymph that looks buggy will take panfish. Carry these patterns in size 12 and smaller.

Traditional wet flies. Panfish can't resist a wet fly swimming toward the water's surface, especially during a hatch of bugs. These patterns should be in everyone's box. Try them in size 12 and smaller in a variety of light and dark colors.



Adams

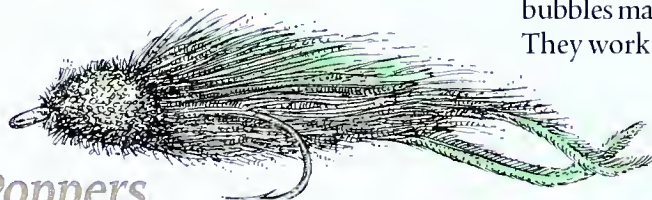


Black Ant

Dry flies

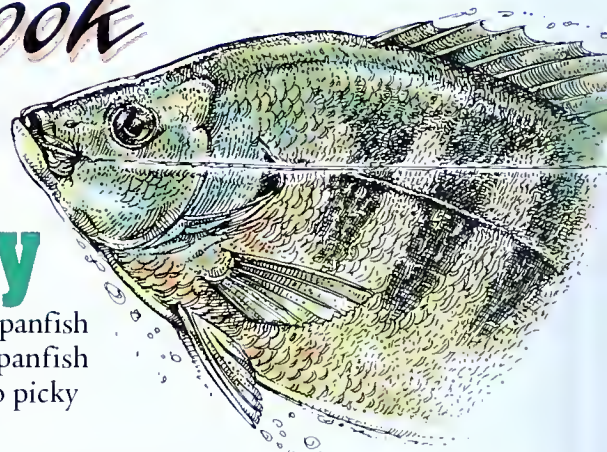
Traditional patterns such as the Adams, Light Cahill and Elk Hair Caddis are all that's needed to match the hatch for panfish. These patterns in sizes 12, 14 and 16 should cover most of the important bugs.

Terrestrials. One of the best flies for bluegills is the sponge-bodied spider. The sponge body floats well, and the rubber legs drive the fish crazy. Carry these flies in sizes 12 and 14 in white, green and yellow. Black ants and crickets also take panfish.



Poppers

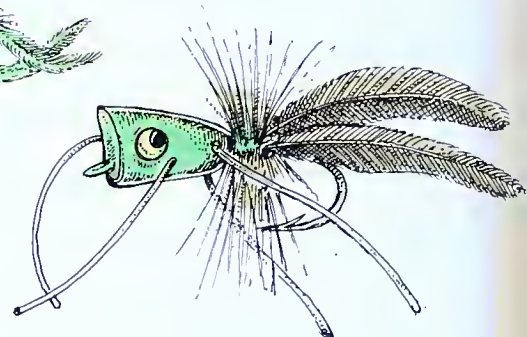
These flies have bodies made of cork, foam or spun deer hair. The popping and splashing grab the attention of nearby fish, and usually they can't resist. Who cares what the fish think they are—they catch fish! You should carry at least white and black poppers, but colors such as green, yellow and brown also catch fish.



Fishing tackle

Lightweight fly rods, casting 2-weight to 4-weight lines, can be fun, except when it's windy. Most of the time, rods throwing 4-weight to 6-weight lines are the best. Leaders don't have to be long and thin, about 7 feet tapering to 2X or 3X should do it.

Spinning or spincast gear can also be used to throw flies. Clip a small (3/4-inch) bobber about 6 inches to a foot above the fly. Actually, you are casting the bobber—the fly just goes along for the ride. There are a couple of casting bubbles made just for this purpose. They work even better.



HAZARDS on the Water

Hazards to boaters appear in many forms—dams, submerged objects, cold water, fast-changing weather, sun stroke and current. These hazards aren't always obvious. Boaters need to recognize these dangers and be ready to avoid them at all times. Developing a keen appreciation and understanding of the overall "boating environment" lets boaters avoid hazards on the water.

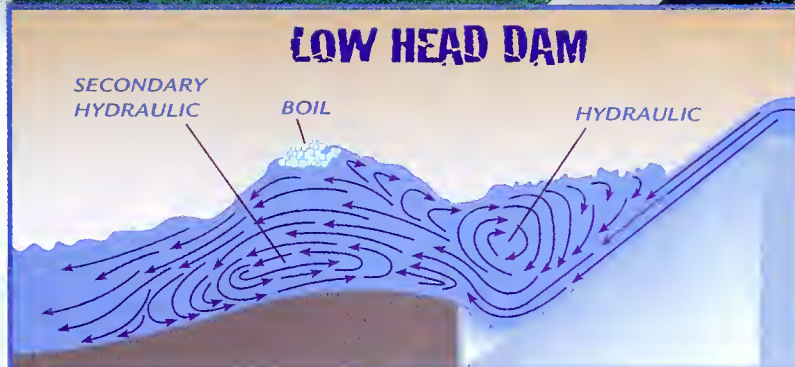
DAMS



Boaters must stay clear of dams. Failure to do so often results in tragedy. Dangerous currents above the structure can draw boats into water going over or through a dam. Boaters should immediately deploy an anchor if they find themselves in an emergency situation upstream of a dam. Areas below dams are also hazardous because of strong recirculating currents and turbulent water. Many dams are not marked. Sometimes dams can be spotted by looking downriver for a discernible horizontal line going across the water, but this is difficult and not always evident. Boaters should know the locations of all dams on the waterway before they launch a boat.

The most dangerous hazard on a river is a low-head dam. There are more than 2,000 such dams on rivers and streams throughout Pennsylvania, and they are true "drowning machines." Water going over a dam creates a back current, or undertow, that can pull a boat into the turbulence and capsize it. This hydraulic can often trap and hold a person or a boat.

Dams do not have to have a deep drop to create a dangerous backwash. During periods of high water and heavy rain, backwash current problems often become worse, extending farther downstream. A small low-head dam that may have provided a refreshing wading spot at very low water



can become a monstrous death trap when the water level rises. Becoming familiar with a river's worst danger and knowing the waters they plan to visit is vital information all boat operators must understand.

CURRENT



Safety on the water depends on developing respect for the power of water. Current can be deceptive and boaters should never underestimate its power. Even a moderate current can exert a force of several tons on a capsized canoe, pinning it against a rock. Boaters venturing out in strong current must stay within their abilities and skill levels, especially in unpowered boats.

A strainer is an obstruction, like a tree or fence in the water, that allows water to pass through but holds and traps boats and boaters. Boaters in current need to keep a safe distance from strainers that they could be "pinned" against.

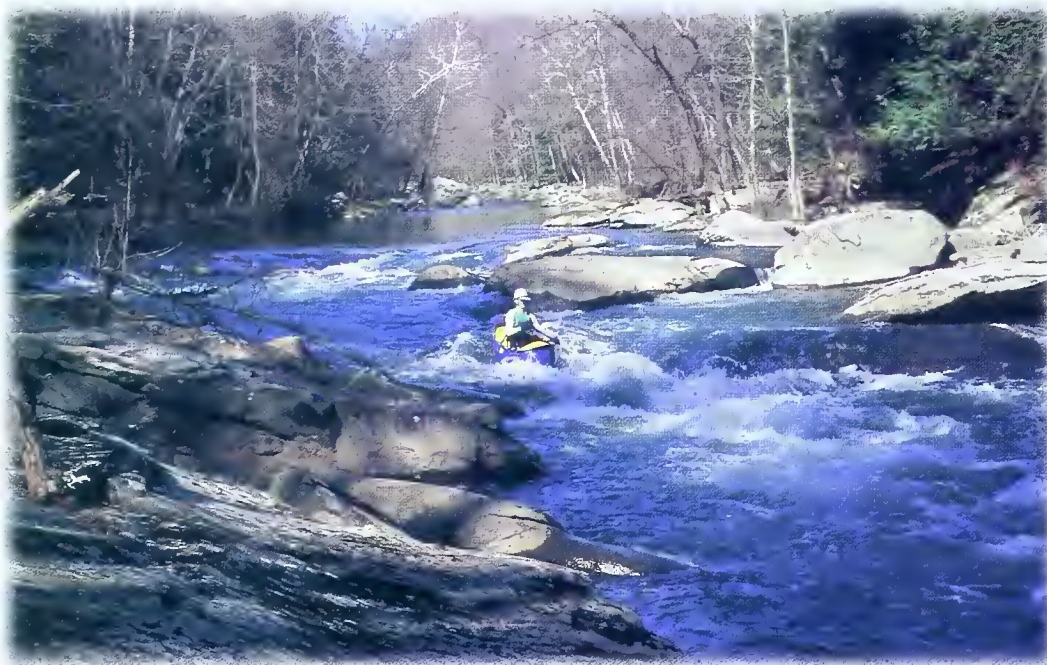
When anchoring in current, boat operators should always anchor from the bow. This allows the boat to ride up and over oncoming waves. Anchoring from the stern can cause water to rise over the transom and flood or even capsize the boat.

Tidal currents can be very powerful. Tides are the vertical rise and fall of ocean water (and waters affected by the ocean) caused by the gravitational pull of the moon and sun. Boaters venturing out onto tidal waters such as the lower Delaware River should understand how tides work. Tides affect where a boater can travel and anchor safely.

WAVES



Large waterways such as oceans and Lake Erie provide different challenges and dangers than moving water. Wind acts on the surface of the water, creating waves. The greater the force of the wind and the deeper and larger the waterway, the bigger the waves can be. Large waves in big water often develop quickly



*Current can be deceptive.
Don't underestimate its power.*

and can endanger small craft. Boaters should not venture out on large waters such as Lake Erie in small inland boats. Even smaller lakes can be hazardous to small craft when wind and waves combine to create dangerous conditions.

WEATHER



Factors that determine weather include temperature, barometric pressure and wind. Weather affects the condition of open water and can change suddenly. Smart boaters check the local forecast the night before going boating and again in the morning. The National Weather Service (NWS) issues a new marine forecast at least every six hours on designated VHF radio channels, or NWS can be telephoned for the latest forecast. The phone num-

ber appears in the phone book's US Government section under "Department of Commerce."

Be alert to weather you can see. Signs that the weather may worsen include:

- Clouds gathering, darkening and increasing in size.
- Sudden temperature drop.
- Rapid wind shift or change in speed.
- Static on the AM radio, which might indicate an approaching thunderstorm.
- Drop in barometric pressure (check a barometer).

IF A STORM IS NEAR



In a small boat, everyone not already doing so should don a life jacket. The operator should head for the nearest shore and beach the boat, if necessary. It is best



Beware of strainers, against which you could be pinned in the current.

HAZARDS on the Water

to find a shore on the downwind (leeward) side of the land.

In a large boat, after making certain everyone is wearing a life jacket, the operator should start the engine or secure the sails (whichever is applicable). All unnecessary gear should be stowed or secured, and the running lights should be turned on. After the boat is closed up, the operator must decide what to do. If land is near, it is best to head for it. If not, it may be necessary to ride out the storm. If forced to do so, the operator should keep the bow headed into the waves, wind and/or current. If the motor fails, a sea anchor on a line from the bow will keep the boat into the waves. A bucket will work as a sea anchor in an emergency.

Lightning is a dangerous part of bad weather. At the first sign of lightning boaters should lay fishing rods flat on the deck and lower or remove antennas. If possible, get to a safe harbor. Being on open water during a lightning storm can be a terrifying experience.

COLD WATER



Sudden immersion in cold water places a severe strain on bodily systems that can lead to cardiac arrest. Survivors of cold-water accidents have reported their breath driven from them on contact with the water. Anyone falling into cold water should immediately cover the mouth and nose with the hands to prevent inhaling water.

Total disorientation may occur. The shock to the system may not allow the person to think or act clearly. Cold water can quickly numb the extremities. Cold hands may be unable to fasten the straps of a life jacket, grasp a rescue line, or hold on to an overturned boat. Everyone should always wear a life jacket. This becomes especially critical when boating on cold water.

Cold water causes the body's temperature to drop. Lowering of the body's core temperature is called *hypothermia*. It can render a person helpless in minutes. Hypothermia begins with shivering. Judgment becomes clouded and unconsciousness sets in. Death can occur if hypothermia is not treated.



HUDDLE



HELP

The huddle position helps a group of people conserve body heat in cold water. The HELP (heat escape lessening posture) acts the same for one person.

HYPOTHERMIA TREATMENT



Remove the person from the water and replace wet clothes with warm, dry clothing and/or a blanket. Do not massage the extremities. Do not give the victim alcohol or caffeine. If the victim is unconscious, transport the victim to a medical facility immediately.

To be prepared for cold water, boaters should . . .

- Make sure the boat and equipment are in first-class condition.
- Always wear a life jacket or vest. It will keep you afloat and help keep you warm.
- Dress properly for the cold by wearing a hat, several layers of clothing, and warm boots. Wool, pile and polypropylene provide warmth even when wet. Avoid cotton fabrics, which are poor insulators when wet.
- Tell someone where you are going and when you expect to return.
- Never boat alone.
- Practice capsizing and righting small boats in the warm-weather months.
- Never panic if you fall into cold water. Air trapped in clothing can provide buoyancy as long as you remain still in the water.

OVERHEATING AND SUNBURN



Just as hypothermia can be fatal, so too can *hyperthermia*. Hyperthermia is an increase in the body's temperature. The body normally cools itself through the evaporation of perspiration. On hot days, continuous fluid replacement is required to avoid dehydration and keep the body supplied so it can sweat. High humidity on hot days makes sweating less efficient as a means of cooling. On the water, boaters are in a more humid environment than when on dry land. Persons suffering from heat illness often feel faint, or are nauseous. They may have a rapid heart rate, and/or a headache. The young and elderly are usually more easily overcome by heat. A well-rested person who has had something to eat recently is better able to cope with the stress of excessive heat.

Treatment requires stopping any exercise and moving to a cooler environment. It is important to get out of the sun and heat. Drinking fluids is also important, although carbonated beverages and alcoholic beverages should be avoided. If untreated, mild heat stress can progress quickly to severe heat stroke, which can be life-threatening. Persons suffering from heat stroke usually have a deterioration in

mental function and coordination, as well as the above symptoms. It is important to begin cooling and get medical treatment immediately.

Sunburn is another danger that everyone, especially boaters, must never forget. Even when wearing a hat or in the shade of a boat's awning, ultraviolet rays are reflected from the water to a boater's skin.

The key to avoiding sunburn is to cover the skin. A hat and light protective clothing create a protective barrier to the sun's rays. Sun blocks with an SPF (sun protection factor) of 30 are effective when applied at regular intervals. Sunglasses are also a very good idea. They protect the eyes from damaging ultraviolet rays, as well as lessen eye fatigue from constant squinting.

Prevention is the best approach to dealing with heat and the sun. Important ideas to remember are:

- Wear light clothing and a hat.
- Drink fluids regularly.
- Reduce physical activity.
- Apply sun block at regular intervals.
- Wear sunglasses.

Boaters must understand that the effects of a day on the water exposed to bright sunshine and high humidity will have a cumulative, possibly dangerous effect. This could affect a boater's judgment and the ability to keep a proper lookout, thereby increasing the possibility of an accident.



SUBMERGED OBJECTS



A submerged object in the water can be a hazard to an unwary boat operator. Rocks, stumps, logs and other objects can greatly damage a boat's hull or motor, sometimes resulting in injury or death to people on board.

Water levels vary on almost every waterway in the state. Even a few inches difference in depth can make the difference between "smooth sailing" and an abrupt



Wearing a PFD while aboard a boat is the best policy.

HAZARDS on the Water

end to the boating day. Running aground at high speed can result in people being ejected from the boat. Boaters can protect themselves by keeping a sharp lookout for objects in the water and changing bottom structure. A depth finder or fathometer can keep a boater informed of the depth of the water. Operators who are not sure of the bottom should reduce speed.

ALCOHOL AND BOATING




Alcohol is a hazard to boaters. Its use increases the chances of a boater having an accident. Alcohol affects balance, coordination and judgment. Instead of making a person warmer, body temperature actually cools faster because alcohol dilates blood vessels. Use of alcohol also results in increased risk-taking.

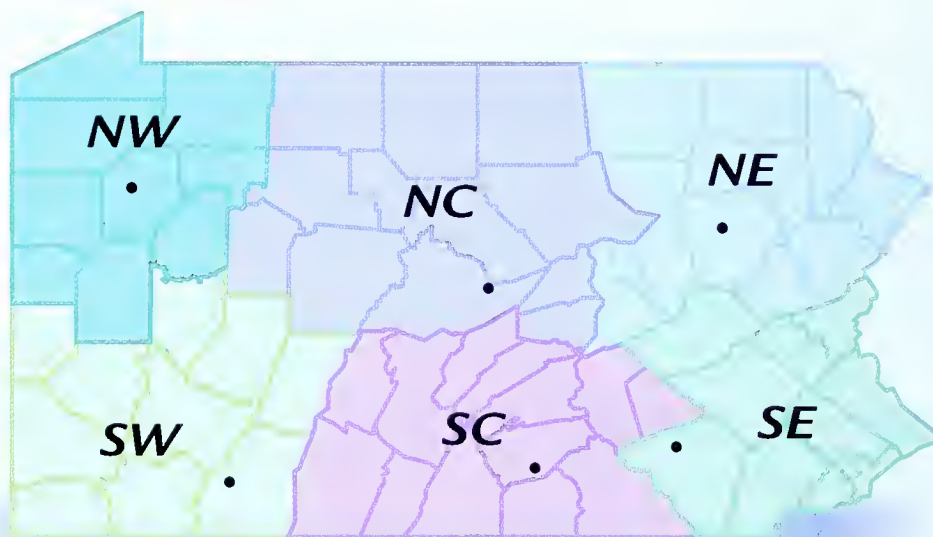
It is illegal to operate a watercraft on all waterways of the Commonwealth while under the influence of alcohol or a controlled substance. Penalties include fines up to \$5,000, 90 days imprisonment or both. Pre-arrest tests can be used by law enforcement officers to determine the probability that a boat operator is under the influence. A blood alcohol content of 0.10 percent or more is considered to be over the legal limit.

OTHER BOATERS



One of the least expected hazards on our waters is other boaters. Even an experienced, competent boater may be involved in an accident because of another boater's mistake or irresponsible action. Whenever possible, boaters should steer clear of other boaters. Report violations to a Waterways Conservation Officer and stay alert. Keeping a sharp lookout while boating is the best defense against an irresponsible operator on the water.

For more information on hazards on the water, take a boating course. Contact any Commission office for information. 



REGIONAL LAW ENFORCEMENT HEADQUARTERS



Northwest Region- Box 349 (1281 Otter Street), Franklin, PA 16323; **814-437-5774.** Butler, Clarion, Crawford, Erie, Forest, Lawrence, Mercer, Venango and Warren counties.

Southwest Region- 236 Lake Road (Lake Somerset), Somerset, PA 15501; **814-445-8974.** Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland counties.

Northcentral Region- Box 187 (Fishing Creek Road), Lamar, PA 16848; **717-726-6056.** Cameron, Centre, Clearfield, Clinton, Elk, Jefferson, Lycoming, McKean, Northumberland (west of Rt. 147), Potter, Snyder, Tioga and Union counties.

Southcentral Region- 1704 Pine Road, Newville, PA 17241; **717-486-7087.** Adams, Bedford, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lebanon, Mifflin, Perry and York counties.

Northeast Region- Box 88 (Main Road), Sweet Valley, PA 18656; **717-477-5717.** Bradford, Carbon, Columbia, Lackawanna, Luzerne, Monroe, Montour, Northumberland (east of Rt. 147), Pike, Sullivan, Susquehanna, Wayne and Wyoming counties.

Southeast Region- Box 8 (Brubaker Valley Road), Elm, PA 17521; **717-626-0228.** Berks, Bucks, Chester, Delaware, Lancaster, Lehigh, Montgomery, Northampton, Philadelphia and Schuylkill counties.



Photo-Art Michaels; map graphic-Ted Walke

Keeping a sharp lookout is the best defense against an irresponsible boater. Report apparent violations to a Waterways Conservation Officer.

When you think about it, “good” is a relative term. Good, compared to what, or where, or whom? I once thought that in the southeast corner of the state, we really didn’t have “good” largemouth bass fishing. Good compared to Florida, certainly not; good compared to Texas, no again. But when I allowed that catching a limit of 2-pound and 3-pound bass during most outings, plus the occasional 4- and even 5-pound fish, made for a “good” day on the water, I had to acknowledge that, yes, the southeast did have good largemouth fishing. What’s more, I didn’t have to break my bank account to do it.

The assessment that really changed my mind was the number of small lakes, those under 1,000 acres, that I could regularly fish and catch “good” bass. The largemouth in these waters are aggressive, hungry and fun to fight. In some lakes the population density is quite substantial; in others, the number of fish over 15 inches, or what I call NFL proportions (Notable Fish Length), is considerable.

In addition, depending on my mood, whether I wanted to fly fish from shore or throw a deep-diving crankbait from a mega-bucks bass boat, I can always find a lake to fit the technique.

A cursory spin around the southeast shows that for shallow-water fishing there is Leaser Lake in Lehigh County and Antietam in Berks County; for canoeing to bass there is Lake Towhee and Hopewell Lake in Bucks and Chester counties, and for the bass boat, minus the 150 horses, there is Marsh Creek, Muddy Run and Lake Redman in Chester and Lancaster counties. Of particular interest are the lakes placed on Big Bass regulations.

Of course, to establish what constitutes good bass waters requires an appraisal by trained biologists as well as the word of regular fishermen. At the Fish and Boat Commission Area 6 Fisheries Manager’s (AFM) office in Revere, there are shelves and cabinets crammed with reports on local lakes. The findings in these reports are based on actual field work performed by AFM Mike Kaufmann and Fisher-

Southeast Pennsylvania’s

LITTLE

BIG BASS

by Vic Attardo



Five lakes in southeast Pennsylvania have surprisingly high-density populations of largemouth bass.

ies Biologist John Soldo and Fisheries Technician Bob Wnuk.

Each lake is evaluated on such criteria as population density and size of fish. Bass over 15 inches long get particular mention in the reports. Population numbers are assigned a grade of low, medium or high. Both the general population and the population of NFLs is determined by the number of bass caught in one hour of field work.

If the field survey finds fewer than 35 fish per hour, the lake is considered a low-density population. Between 35 and 59 bass per hour means the lake has a good or medium density. Sixty and over is considered a high density population.

Five lakes in the southeast have high-density bass populations.

Unfortunately it’s a bit harder to get an accurate picture of the number of large bass because there can be a substantial fluctuation from year to year. The Commission’s “minimum objective”—that is, the lowest desirable number of bass 15 inches and over—is between 2.5 and 3 fish per survey hour. This really isn’t very good, and such a lake would not be considered prime for trophies. On the other hand, two lakes in the southeast have revealed a survey rate of 12 and 16 fish per hour for the larger largemouths. This is pretty darn good, and even though the bass aren’t Oklahoma granddads or Texas Alamos, they are decent fish.

But to my way of thinking, survey work is not the only factor in determining the quality of a lake. A lake has to “fish good” to get on my “good” list. Of course, if anglers don’t crack a lake’s secrets it may receive an unjust reputation. That certainly has happened to some southeastern lakes. Eventually however, as enough wise fishermen bring their talents to the water, a consensus of its sporting qualities is reached.

No doubt, some southeastern lakes are hard to fish. The main complaint is in their inconsistency—easy one day, impossible the next. On the other hand, some little lakes are pushovers, giving up large numbers of fish just about every time you hit the water. In the southeast we have both kinds. Wet a line on the following little lakes and judge for yourself how “good” the fishing is.



Marsh Creek Lake, Marsh Creek State Park, Chester County

Lake Williams

Last year I didn't get to Lake Williams in southern York County until late fall. But when I did I was pleasantly surprised. Much of the shoreline that had been previously closed to fishing was open.

That change didn't necessarily make bass fishing from shore along the heavily wooded banks any easier, but it did make it legal.

Lake Williams has an excellent reputation for holding big fish. On the Kaufmann scale, the population of the lake rates as high density. Survey work averaged 12.5 bass per hour over 15 inches, one of the best in the area.

Williams is a typical southeastern lake with steep shoreline dropoffs and a minimum of good shallow coves. As such, two types of lures work well in the late summer months—plastic worms or crayfish, and deep-diving crankbaits.

For Williams I like crankbaits that travel quickly to 16 feet in shad and perch colors. Hot chartreuse doesn't work well here. In the summer, it's a long, hopping trip down the bank into 20 and 25 feet of water. A 4-inch worm or crayfish attracts the most attention on this ride. My go-to colors are black/chartreuse tail; black/blue claw and pumpkin pepper. But when the lake is banged repeatedly with the same flavor, I go to camouflage and junebug colors.

Come fall this is classic spinnerbait water. Using a white/chartreuse or white/chartreuse/blue skirt, I cast tight to the bank—very tight—and often get bit in the first few feet of cover.

HOT TIP #1. On summer evenings as the sun fades behind the trees, try a shad-colored popping plug in open water above the weed fields. Some of the best fishing occurs around the spillway in the shallows.

Williams carries Conservation Lake regulations. Electric motors and car-top boats only. Williams weighs in at 220 acres.

Marsh Creek

Visiting fishermen are always saying how surprised they are with the amount of weeds in Marsh Creek. This lake is thick with milfoil.

This Chester County lake, in Marsh Creek State Park, is a special place in the southeast because in spring and summer its waters are usually crystal clear. Mike Sabbi, president of Brandywine Bass Club, once told me what he likes most about his home waters is the ability to watch a fish 20 feet away strike his lure and see the whole fight as clear as a Technicolor movie. I agree. I love it when I can see a big bass turn on a dime to bolt in another direction. In Marsh Creek, I've even watched them pick up my rubber worm and run with it. In the fall, as the water weeds die, Marsh Creek murks up like other southeastern lakes, but that's another story.

A combination of steep shorelines, wide, flat coves, mid-lake humps and grassy points makes this lake a real amusement park for the bass fisherman. Cover is rich and varied, but you won't find many deadfalls along the shore and the few that reach into the water are worked pretty hard.

For this reason the steep shorelines are the best target. I like to work about 30 feet out from the banks and cast a crankbait or worm down the submerged embankment. Quartering your cast so that it parallels a dropoff is more effective than just running the lure straight down.

HOT TIP #2. Small 4-inch rubber worms with straight or no-tail bodies are a prime bass catcher in the weedy slopes away from Marsh Creek's banks.

Because Marsh Creek has such clear water, I like an evening float on the lake. Bass start rising for topwaters about a half-hour before sunset and continue to dusk. Mike and I had a remarkable evening last summer as I cast a jointed black Jitterbug and he threw a silver Pop R. My fish came from the quiet waters along the shallower shorelines while Mike's fish came from the noisy water around the spillway. We came to understand something here that worked for us on other moonlit nights: When the water is placid, work a quiet lure quietly; when the water is more disturbed, such as at a creek mouth or spillway, use a noisier lure.

Big Bass regulations apply on Marsh Creek's 535 acres.

Antietam

At only 13.5 acres, little Antietam Reservoir is not going to attract any glitter-hulled bass boats. And with a low density of large-mouth and mostly small fish, it's not going to garner a lot of attention, anyway. But if you don't have a farm pond to work and you want an evening of fly casting to a few freaky fish, try this deep-woods lake east of Reading in Berks County.

Away from the spillway, Antietam's shoreline is shallow but very soft. As the sun sinks below the surrounding hills, you can watch the bass cruise in water only a foot or two deep. This is a bass-bug-with-a-fly-rod lake, and that's why I like visiting it two or three times a season. When the wind blows me off larger Lake Ontelaunee or Blue Marsh, this is where I travel.

The trick to fishing Antietam is to gather some small bass around your popper and then tease one into hitting while hoping the clouds of mud settle around your feet. You know the kind of place.

In 90 minutes I go through a whole host of flies along this shoreline. As soon as I get one or two bass to strike a pattern, I have to switch feathers to fool the next one. In addition to fishing, watch the woods because a good number of owls live around here and you may be lucky to spot one. Bass and owls, how can you go wrong?

Towhee

If the lily pads at Lake Towhee were people food, you'd never have to go to the grocery store again. This Bucks County water is choked with thick, heavy vegetation, particularly on the upper end. Nevertheless, each year before the weeds get too bad, Towhee gives up a couple of really good bass. Over the years I've gotten two 18-inch largemouths in Towhee. The other fish are always under 12 inches.

I like to float a car-topper at Towhee on a summer evening. Plastic topwater lures such as the SnagProof Frog and The Rat, give me thrills as bass suck them down among the weeds. Big deer-hair poppers were made for this kind of abuse on a 1 or 0X tippet.

I watched Gary Mauz of Warrington plop his belly boat into the weeds at Towhee one day and have a great time casting into the thicket. He said he did this a bunch of times at Towhee and had some nice surprises on the end of his line.

HOT TIP #3. Fish big, deer-hair or foam popping bugs with a 7-weight fly rod and 0X or 1X tippet through the very heavy cover. Towhee bug colors include frog, white/red stripe and a black/red stripe in low-light conditions. Don't forget the weed guard.

Chester-Octoraro Reservoir

I've fished this Chester County lake only once, but I liked it right away. Nick Canestra of the Brandywine club took me to a shallow sloping point, and on my third cast with a crankbait I

hooked a 3-pound fish. Nick explained the bass move up and down the point all day and you just have to be there to intercept them when they come. As we intermittently hooked and lost fish, I saw another angler doing the same on this wide-angle triangle.

The fishing at Chester-Octoraro is not limited to one location. There are long piles of rip-rap near bridges, and the shorelines are ringed with tall evergreens and lots of lay-downs. Shallow flats cover the area above the Route 472 bridge at Mount Vernon

and the arms of this lake jut in every direction. It's also bigger than some of the lakes we've been talking about, 669 acres.

Located off routes 472 or 272, this lake is operated by the Chester Water Authority. It's a well-run place but it has some unique regulations. For starters, fishing is open only between May 1 and October 31, and though it is an electric-motor lake, no canoes are permitted.

Even in mid-summer, with a long interval between rainstorms, Octoraro was a stained, deep-green color. Visibility was less than 5 feet. Under those conditions I like to work black worms and crankbaits colored deep green with bits of orange and yellow. Nick says dark colors with a little flash work best in these waters.

Next time out, I intend to take my 7-weight fly rod to the flats above Route 472 and work it with a bristly three-inch Woolly Bugger juiced with Krystal Flash. Nothing fancier should be needed. Off the steeper shorelines I'll try deep-orange

crankbaits and similarly colored flies because there're a lot of crayfish in this impoundment.

Kaufmann's assessment of Chester-Octoraro is that it has a low density population of bass, but many fish are 12 inches and over. I believe that means the fish are highly concentrated. In any case, this is a lake I want to face again.

Leaser Lake

The future of Leaser Lake is in the future. Because the dam needed repairs, the lake was drained and closed for a couple of years. When it was stocked and reopened in 1995, there were so many small bass you couldn't keep them off your hook. One evening I caught between 25 and 30 largemouths all around 10 inches.

Someday, when the great Culler in the Sky reduces the number of fish and a few of these babies grow to NFL size, there's going to be some interesting fishing on this 117-acre lake.

Leaser is a park so the shorelines are de-wooded. Grass fields and geese line the gentle banks. You can take the children here and not worry too much. Also, you can walk away from the congested spots and into some areas that are less hammered. On that big-number small-fish evening I mentioned, a slight breeze had pushed some baitfish back into a pocket cove and I cast float-

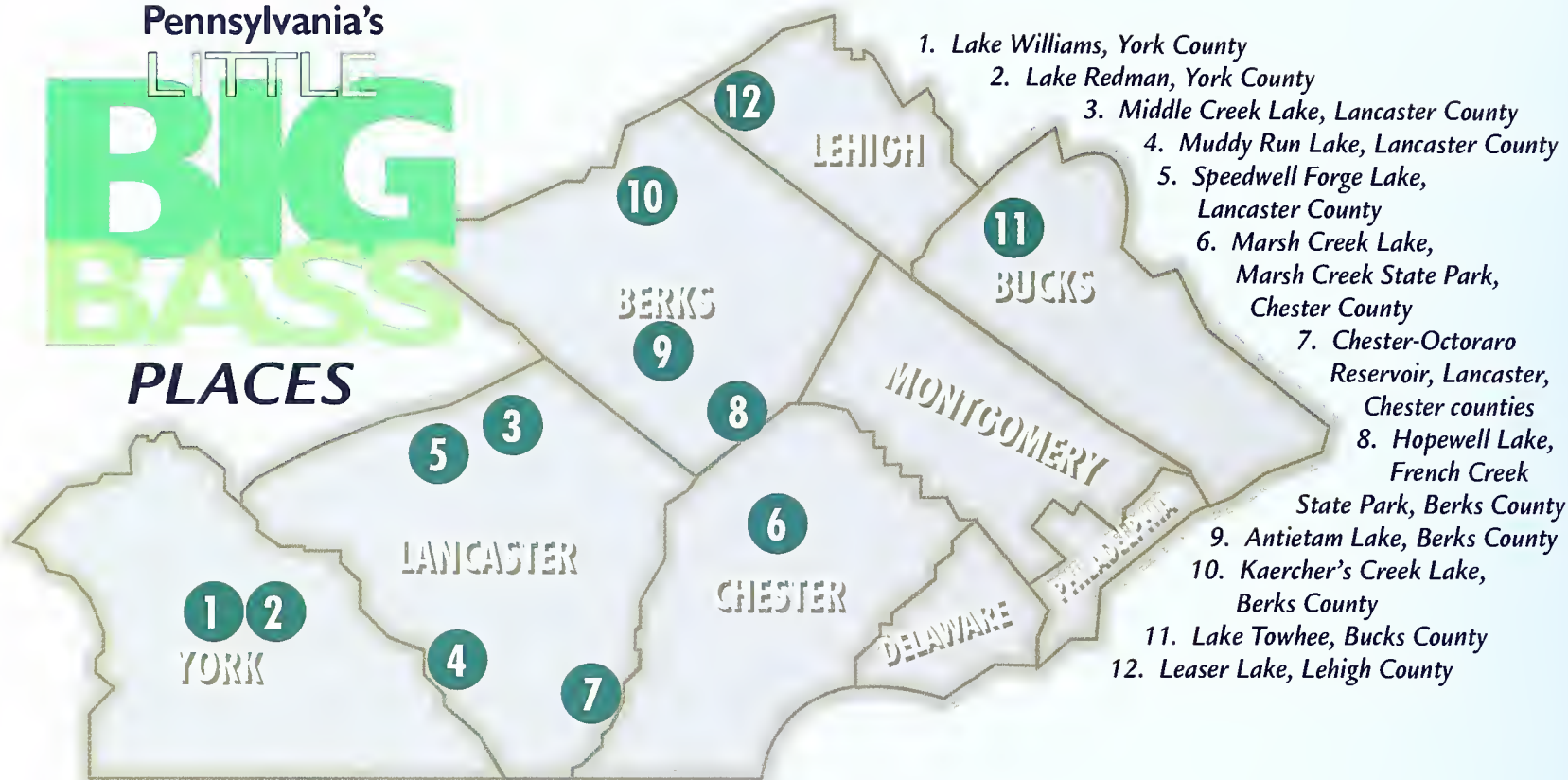


Five-pound largemouth from Marsh Creek Lake

Southeast Pennsylvania's

LITTLE BIG BASS

PLACES



1. Lake Williams, York County
2. Lake Redman, York County
3. Middle Creek Lake, Lancaster County
4. Muddy Run Lake, Lancaster County
5. Speedwell Forge Lake, Lancaster County
6. Marsh Creek Lake, Marsh Creek State Park, Chester County
7. Chester-Octoraro Reservoir, Lancaster, Chester counties
8. Hopewell Lake, French Creek State Park, Berks County
9. Antietam Lake, Berks County
10. Kaercher's Creek Lake, Berks County
11. Lake Towhee, Bucks County
12. Leaser Lake, Lehigh County

ing-minnow plugs in every direction on the compass. It was great fun.

Leaser is a Conservation Lake with special regulations. Check your *Summary of Fishing Regulations and Laws*. The lake is located off Route 143 in northwestern Lehigh County.

Hopewell Lake

Kaufmann rates Hopewell Lake in French Creek State Park as having a good population of bass with some NFLs. Hopewell's 68 acres are structureless and the main feature is a small island near the boat ramp. Because the shoreline gets pounded by casual anglers, the more productive fishing is in a boat away from the heavy casting. The size of the lake means the bass have seen it all, and because it's under Big Bass regulations these fish know what a hook is. Still, I like Hopewell a lot. The scenery is beautiful. When I do catch a few bass, they're usually winners.

HOT TIP # 4. Casting from shore a big 7-inch firetail worm will take some bass early in the morning on Hopewell. Black/chartreuse and purple/red along with a curly-tailed junebug worm have worked. The panfish will nip at the fire tails but the commotion also interests the big bruisers.

Muddy Run

Muddy Run Lake off Route 372 in Lancaster County empties into the Susquehanna River below the Holtwood Dam. At just 98 acres it isn't very big and you can work the main lake shoreline in about two hours. But Muddy Run has other interesting features including a large island in the center of the upper lake and one very long arm where Muddy Run creek enters the impoundment. Both structures seem a lot more productive for bass than the sharply sloping shorelines of the southern edge.

I had two good trips to Muddy Run last year, one in the heat of summer when my partner, Mike Sabbi, and I caught only six fish but each measured between 14 and 16 inches. The second trip was mid-fall when Mike, Nick and I lucked into a bait-chasing school of largemouths. It was tough to tempt these satiated bass to our poor imitations, but Nick ended up doing pretty well on crankbaits.

Muddy Run is full of crayfish and it can be difficult competing with the abundance of this banquet treat. But crankbaits bounced off stumps and along old road beds attract their share of big bass.

Only electric motors are permitted on the lake and below the dam only shore fishing is allowed. Much of the lake is off limits to shore or boat fishing. Kaufmann rates this lake as having a high density of fish with a good show of larger fish.

More little big bass

Other small lakes in the southeast worth considering are Kaercher's Creek Lake near Hamburg, Berks County. High density population, some in the NFL range but most bass only 8 to 10 inches. Big Bass regs on Kaercher's Creek Lake's 30 acres.

Lake Redman adjacent to Lake Williams. High density population but fewer trophy fish as its cousin. Redman is worked hard because it has a real boat ramp. Big Bass regs again on Redman's 290 acres.

Middle Creek Lake in Lancaster County has never been surveyed by the Commission, but regulars know that its 400 acres hold very large bass.

Speedwell Forge Lake in Lancaster County. Overall a moderate population but good numbers of large fish. Big Bass regs, of course, on its 106 acres.

HOT TIP # 5. Go fishing in one of these southeastern little lakes. The fish are waiting for you.

More information...

Want more details on these waterways and others? The Commission's *Fishing and Boating Map* is a good source for access information with specifics on an area's offerings. Combined with the official transportation map, you'll find boating accesses, flowing water and lake/impoundment specially regulated areas, pumpout stations, hatcheries and Commission offices. Maps are free, but with mail orders please include \$1 for postage and handling. Contact: Fulfillment Section, PA Fish & Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000.



American Shad in the Lehigh River: Results of Commission Efforts in 1996

by Richard Snyder and David Arnold



There goes one! My first sighting of an American shad through the public observation window at the fish passage facility at the Easton Dam on the Lehigh River was enough to cause goosebumps. It was May 22, 1996, and finally I got to see a shad actually in the fishway. The facility had been in operation for three springs, but I had yet to see a shad, undoubtedly because of poor timing, cold high flows or muddy water.

As I walked to the downstream side of the dam, Fisheries Technician Dan Bourke was placing boards in the entrance to the fishway to adjust attractant flows. He, too, was excited! As he straddled the top of the entrance, a big roe (female) shad several feet below promptly entered the fishway on her journey upstream. Shad are sometimes considered shy fish, but this one paid no attention to the moving figure above as she sought passage upstream. Later Dan was able to brief me on the status of the run. He is a veteran Commission employee with close to 30 years of service and normally not prone to get excited about fish. However, the run had him going!

Flood damage

Back in March 1996 I was pessimistic about much of a shad run up the Lehigh. The record January 1996 flood deposited considerable debris in the Easton Dam fishway, no doubt because it is right at the

confluence of the Lehigh River with the Delaware River. Area 5 Fisheries Manager (AFM) Dave Arnold reported in February that for all practical purposes, the fishway was filled with several feet of mud, silt and flood debris. The outlook for opening it was not good. The Bureau of State Parks, responsible for maintenance of the Easton and Chain dams fishways, was also hit hard with flood damage and was doubtful if work would occur in time for the run.

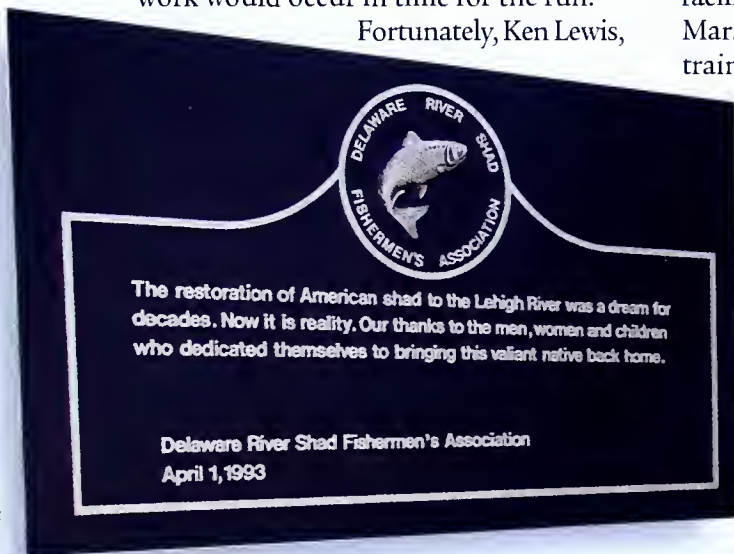
Fortunately, Ken Lewis,

depending on river stage of both the Lehigh and Delaware rivers.

Then, Fisheries Technician Russ Burman and Biologist Aide Dan Sitler repaired electrical wiring for the video taping system. At the Chain Dam a video taping system was installed to document passage there. In addition, a fish crowder had to be fabricated and installed in the chamber adjacent to the observation window to facilitate taping. Seasonal employees Seth Marsh and Jeffrey Kyzer were hired and trained to operate video equipment, replace/recharge the battery system and to identify/count fish from the tapes with back-up support provided by Dave Golobek, a summer employee at the Area 5 Bushkill office. Waterways Conservation Officer Terry Hannold and Deputy Waterways Conservation Officer James Baran assisted in setting up and adjusting fishway flows. All was ready by April. Would the shad come?

The run begins

The 1996 run began on April 27, with the first adult American shad passing through the Easton facility at 5:47 p.m. Video tapes showed the first fish passing through the Chain Dam at Glendon at 7:42 p.m. on May 11. From April 27 to May 17 only 113 shad had passed the Easton Dam. Then, perhaps hitting the right attractant flow or numbers of shad moving up the Delaware River, 563 more moved into the Lehigh River between May 18 and 23. Taping continued on a 24-hour basis into



Manager of the Delaware Canal State Park, and employees headed by Eugene Mulitsh, came through with flying colors. They, and a private contractor, moved in and cleaned the fishway. Hundreds of tires and an estimated 600 tons of silt and related debris were removed. In addition, sand/gravel bars at the entrance and exit were "rearranged" to provide a natural passageway. The state park crew also provided wooden planks necessary to adjust attractant flows

July at both facilities. Except for a few short periods of muddy water, tapping provided an excellent basis for determining upstream migration.

As in 1995, there were two peak passage periods through the Easton facility. However, those of 1996 were offset by about one week. When tapping ended on July 11 at the Easton site and a few days earlier at Glendon, 1,141 adult American shad had passed the Easton Dam (compared to 87 in 1994 and 873 in 1995) and 496 continued on through the Chain Dam. In addition, several thousand fish of 15 or more species were also noted.

Where'd they come from?

We wanted to know the origin of adult shad ascending the Lehigh River. Were they the result of fry stockings over the past several years 24 miles upriver, or were they wild shad straying in from the Delaware River? We knew none would be from in-river spawning because passage had been blocked since 1829, and any fish resulting from spawning in 1994 or 1995 would still be too young to return in 1996.

We wanted to verify the contribution of half-inch stocked fry because of the considerable effort and expense involved in collecting eggs from American shad netted from the Delaware River, hatching the eggs, rearing and then stocking the tiny fry. We needed to know if young fry would survive and imprint to the river as the "home" to which they would attempt to return to as adults four or more years later. Also, would they spawn, and if so, would the eggs survive, hatch and result in fingerlings moving back to the sea in late summer?

If readers recall an *Angler* article, "Lehigh River Shad Restoration," by Dennis Scholl in the December 1994 issue, the Commission had developed a game plan to establish a self-sustaining spawning run of some 165,000 or more adult shad. Years before the 1992 start of construction of the fishways, the Lehigh River was stocked annually with young shad. It was hoped they would return to the mouth of the Lehigh River at the base of the Easton Dam. Part of the plan called for the stocked fry to be marked to specifically identify them when they returned to the river as adults.

At the Commission's Van Dyke Research Station, Division of Fisheries Research personnel gave young shad a bath in a solution of tetracycline. Tetracycline, an antibiotic compound, is absorbed by bony material, which for 4- or 5-day-old shad is the otolith, or earstone. When exposed to ultraviolet light in a laboratory setting,

Fish Species/Type	Easton Dam Fishway			Chain Dam Fishway
	1994	1995	1996	1996
American shad	87	873	1141	496
Gizzard shad	..	51	23	39
Striped bass	..	19	5	2
American eel	..	1	4	34
Sea lamprey	..	6	27	7
Trout	..	110	43	96
Muskellunge	..	9	6	1
Walleye	..	3	2	1
Yellow perch	..	2	31	90
Largemouth/ Smallmouth bass	..	448	348	557
Sunfishes	..	565	289	828
Carp	..	338	1374	1343
Catfish	..	284	503	545
Fallfish	4	182
Golden shiner	2	6
Sucker	..	1718	1607	2899
Total	87	4427	5409	7126

tetracycline-exposed otoliths give off a yellowish fluorescence. In addition, working with otoliths has another benefit. Otoliths show growth increments much like a fish scale or the cross-section of a tree trunk. We could then examine otoliths from adult shad to determine age and origin.

Once AFM Arnold knew several hundred adult shad were in the river, the Area 5 crew set out to see how far upstream they had proceeded, and to catch a sample for otolith analysis. He was extremely pleased to see shad in the process of spawning at more than one location during the sampling efforts. The Area 6 crew, under AFM Mike Kaufmann, pitched in as the Area 5 staff were also tending nets and spawning shad on the Delaware for the Lehigh and Susquehanna River restoration efforts.

Eventually, over 30 adult shad were taken at the base of the Chain Dam, a logical place for fish to congregate. Nine were picked up just downstream of the Samuel Frank Memorial Dam at Hamilton Street in the city of Allentown. Although a fishway was constructed there in 1984, it is doubtful it was passable in 1996 because it was clogged with flood debris.


Of the 39 shad examined, 36 had "marked" otoliths from the hatchery program. Three came from wild shad, probably strays from the Delaware River. Results from otolith analysis work in 1996 and 1995 indicated a very high degree of fidelity for shad stocked in the Lehigh and returning there years later as adults.

Documentation of reproductive success began in early August when Arnold's crew with additional assistance by DWCO Baran, Area 6 Fisheries Biologist Aide Chris Graf, and local volunteer Chyrl Petrachovich began seining operations. The idea was to work over a two-month period at several sites

along the Lehigh to get a representative sample of the out-going juveniles before they headed downriver on their way to the ocean.

High flows prohibited seining at some sites, forcing the crew to resort to electrofishing from a johnboat. Some nights the crew collected only a handful of young shad, while hundreds were seen or taken on other trips. Body length ranged from 1.5 to slightly over 4 inches, undoubtedly because of length of time in the river and, of course, origin.

Samples of juvenile shad were sent to the Commission's Division of Fisheries Research, headquartered at the Benner Spring Fish Culture Station. There, Mike Hendricks and Fisheries Biologist Aides Scott Rhoades and Tim Wilson measured lengths and extracted and examined otoliths for marks made by the tetracycline. The results were very encouraging. Slightly over 10 percent of the specimens did not have the tetracycline "mark" on the otolith. This means they were the result of in-river spawning by adults having passed the Easton Dam and perhaps the Chain Dam. The rest were those stocked by Fisheries Biologist Scott Carney, a few months earlier. Similar work in 1995 showed only one percent of the juvenile shad were from in-river spawning. Did the passage of a few hundred more shad make the difference in 1996? Who knows!

If you're interested in seeing a fishway and possibly observing the run, visit the Easton Dam. Located right at the mouth of the Lehigh River at Easton and immediately adjacent to the Canal Museum, the facility is readily accessible. 

Richard Snyder is Chief of the Commission Division of Fisheries Management. David Arnold is the Commission Area 5 Fisheries Manager.

PLAY



Pennsylvania • League • of • Angling • Youth

SUMMER 1997

FISHWAYS

Before 1750, American shad were plentiful in Pennsylvania's eastern rivers. After that time, shad populations declined because of overfishing, water pollution and dams. Fish like American shad must swim upriver to spawn. When a dam is built, it blocks their path. Before the dams were built, lots of shad could spawn all over the upper parts of the river. Now they have only the lower parts of the river below the dam. Some fish might spawn, but not as many as before. Each year, fewer and fewer shad are born. Each year there are fewer and fewer shad to catch.

There are ways for fish to get over dams.

How do you get from one floor in your house to another? How would you get to the top of a very tall building? You would use the stairs or the elevator! That is exactly how fish get past dams and other blockages—they take the stairs or the elevator! These “stairs and elevators” are called *fishways*, or *fish passageways*.

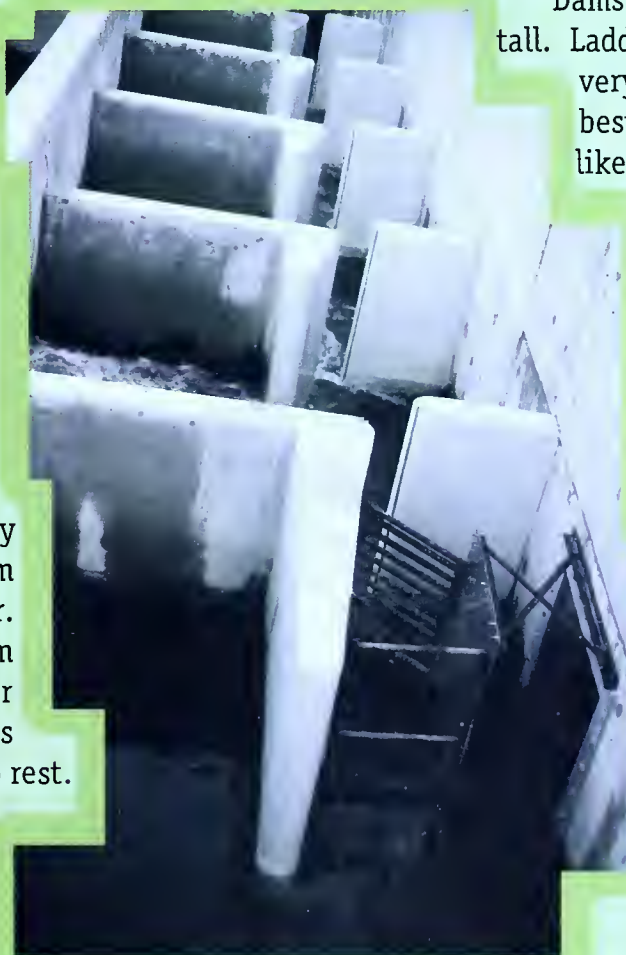
The “stairs” they take are actually called *fish ladders*. Water from upstream flows into the ladder. Migrating fish instinctively swim against the current to reach their spawning grounds. The ladder has “steps” where there is a calm place to rest. Between each step the water flows a little faster. The fish swim and rest, swim and rest until they reach the top. To the fish, this is just another rapid in the river. Then they



return to the river above the dam. Ladders work best on dams that are about as tall as your house. Dams on the Lehigh and Schuylkill rivers have ladders.

Dams on the Susquehanna River are very tall. Ladders on these dams would have to be very long. Elevators, or fish lifts, work best on these dams. Fish lifts work just like elevators. Water from upstream is piped below the dam. Migrating fish are attracted to this water and enter the lift. A gate is closed behind the fish, and they are lifted up. The lift is just a big bucket—about the size of a pickup truck. Once at the top of the dam, the bucket dumps the fish into the water above the dam.

Pennsylvania's fishways were developed to help American shad reach their historical spawning grounds. Other fish like hickory shad, alewife, herring, striped bass and the American eel also use the fishways. By the year 2000, all the dams on the Susquehanna will have fishways. Science is at work at the Fish and Boat Commission.



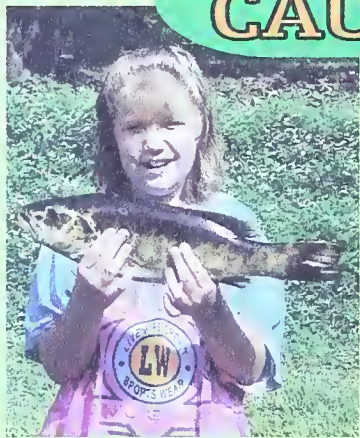
Pennsylvania Fish & Boat Commission





KIDS!

CAST and CAUGHT



Beth Maines earned a Junior Angler Award for this 3-pound, 8 1/2-ounce smallmouth bass. The bass was 20 1/8 inches long. She caught the fish in Sinnemahoning Creek.



Alex Hundertmark lives in Kenai, Alaska. He was visiting Kennerdale last summer when he caught this brook trout in Pine Hill Run.



Robbie Zychowski shows the 14-inch largemouth he caught at Tamarack Lake.



Brian Cunningham, age 13, earned a Junior Angler Award for this walleye. He caught the Lake Erie fish on a nightcrawler. The walleye weighed 7 pounds, 4 ounces and measured 28 1/4 inches long. Brian lives in Pittsburgh.



Joshua Foulds proudly poses with his first largemouth bass. He caught the fish in Conewago Lake, York County. It was released unharmed after a quick picture.



Ryan Nelson used a rubber worm to catch this catfish. He caught the fish in Peace Valley Park Lake, Bucks County. The fish weighed 9 pounds.



Matt Bigos, age 6, shows off the 19 3/4-inch rainbow trout he caught while fishing in a trout rodeo at Cacoosing Creek in Berks County.



Danny Scholl proudly shows off a channel catfish. He caught the fish in Blue Marsh Lake. It weighed 4 pounds.



Matt Ehrin caught and released this walleye while fishing the Ohio River near the Emsworth lock and dam. The fish weighed 10 pounds and was 27 inches long. Matt is from Pittsburgh.



Charlie Marraccini caught this rainbow trout in Beltzville Lake. The fish measured 25 inches long and weighed 7 pounds, 12 ounces.

Stoneflies

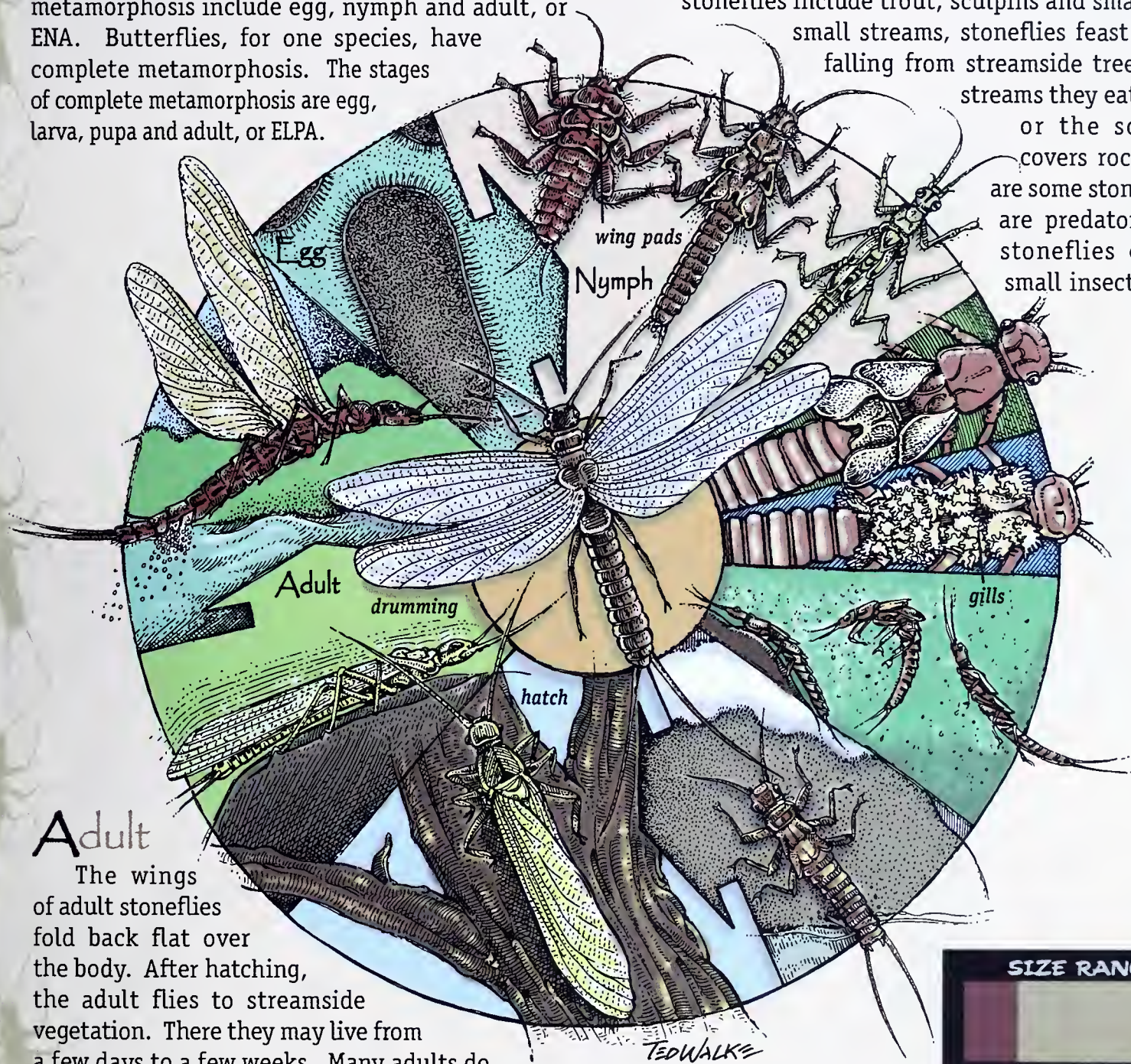
Stoneflies live in habitats with plenty of stones and rocks. They need cold, fast-moving, clear water with lots of oxygen. Small mountain brooks usually have lots of this kind of habitat. Some large streams in wooded areas also have many stoneflies.

Stoneflies, like mayflies, have incomplete metamorphosis. The stages of incomplete metamorphosis include egg, nymph and adult, or ENA. Butterflies, for one species, have complete metamorphosis. The stages of complete metamorphosis are egg, larva, pupa and adult, or ELPA.

Nymph

Stonefly nymphs have two tails and two sets of wing pads, or plates. They also have gills on the middle body segment near their legs. Mayflies may have two tails, but their gills are on the last body segment. The nymphal stage of most stoneflies is one year. There are a few species that take as long as three years to mature. Stoneflies crawl on and cling to the rocky bottom. There they hide from the current and predators. Animals that eat stoneflies include trout, sculpins and small fish.

In small streams, stoneflies feast on leaves falling from streamside trees. In big streams they eat the slime or the scum that covers rocks. There are some stoneflies that are predators. These stoneflies eat other small insects.



Adult

The wings of adult stoneflies fold back flat over the body. After hatching, the adult flies to streamside vegetation. There they may live from a few days to a few weeks. Many adults do not eat. Some do eat plants, pollen or nectar.

The adults attract mates by "drumming"—bouncing up and down on their perches. They mate on this vegetation. The female takes the fertilized eggs to the water to deposit them. She may skate across the surface, dropping egg packets. This is when trout eat the adults. A bushy dry fly skated across the surface at this time can bring slashing strikes.


Hatching

Stoneflies hatch or emerge on dry land. Often the nymph crawls to a streamside rock and the adult emerges. Trout and other fish may eat the nymphs as they make the move to these places.





Canoeing



It was a great summer day. The sky was blue, no clouds to be found anywhere, and a warm breeze was blowing. Sally and Michael, brother and sister, were sitting on their deck deciding what to do. The sun's reflection sparkling off the stream in their backyard caught their eyes.

"Hey, let's go canoeing by ourselves," said Mike.

"I don't know," said Sally, "Dad usually goes with us."

"Well, let's ask!"

They found Dad and he said it was okay. He wanted to go over some safety rules before they went.

"I don't need any rules," Mike said.

"I remember everything you told me," he said, as he ran off to get his swimming suit and radio.

"You better go over them with me," Sally told her Dad. "I want to be sure."

The first safety rule Dad talked about was the importance of wearing a life jacket. Before the canoe even touches the water, your life jacket needs to go on. The life jacket needs to be the right size, too. The "touchdown test" is a good way to make sure it fits. Put the life jacket on, and raise your arms over your head, as if you were a referee signaling a touchdown. Have your mom or dad grab the life jacket with both hands at the shoulders and pull the life jacket up. If the life jacket stays in place, or if the zipper does not touch your nose, it probably fits. If the life jacket pulls off or nearly comes off, then it is too loose. Make sure the life jacket fits snugly.

Dad told them how to launch and enter the canoe. He told Sally never to get into a canoe on dry land. He told her to push the canoe into the water until there is no gap between the land and water. He explained that one person should hold the canoe while the other steps in. When getting in, he said to stay low and hold onto the sides of the canoe. Once in, that person should hold onto the land or dock while the other gets in the same way. He warned them never to stand up in a canoe! Canoes are very "tippy" and you could easily fall overboard.

He also explained what they should do if the canoe tips over, or capsizes. He said that most canoes float when they are capsized—even when filled with water. If they capsize, he said to stay with the canoe.

"Get on opposite sides and pull yourself into the filled canoe," he said. Then "use your hands to paddle to shore."



KID'S STYLE



Dad told her they should stay with the boat if they were far from shore. Rescuers can spot a big canoe easier than two little heads bobbing in the water.

Their dad warned them about obstacles they might find on the water. Things called "strainers" are common on rivers and streams. Strainers are just like the strainer or colander used in the kitchen when draining spaghetti or cleaning vegetables. Strainers are a very deadly obstacle on the river. A tree

fallen across or into the stream or river is the most common. The water flows through the tree and holds a canoe or a person against the tree and its mass of branches.

In a strainer, the boaters are like the spaghetti or vegetables in the colander.

Water flows past the spaghetti and through the holes in the colander. Water flowing fast between docks and bridge piers on a river or stream is another kind of strainer.

Dad also warned them about low-head dams. He called these dams "drowning machines." Why are they called "drowning machines"? Water flows over the dam and tumbles back against the dam. The water tumbles over itself and continues to do this without stopping, like water in a

washing machine. If you or your canoe is caught in this washing machine, chances for survival are very slim. Your best chance for survival is to stay away from low-head dams!

As Sally and her Dad walked the canoe down to the stream, Michael came running down through the yard with his swimming suit on and waving his radio and big water gun. He slipped on his life jacket and he held onto the canoe for his sister. Michael said to his Dad, "I go boating to have fun. By being safe and following the rules I can have even more fun!" Sally looked at Michael's water gun. She looked at her dad and said, "I'm not sure how much fun I'm going to have, since Michael has his water gun and his radio!"



They shoved off, and paddled down the stream. They made it safely to the spot where Dad would meet them. This trip was fun and safe—because they listened, and did what they were told. *What do you think might have happened if they hadn't?*



People Science



Why Do We Have Special Regulations?



Some waters have regulations that are different from other waters in Pennsylvania. On these waters, the minimum size for fish might be bigger or the creel limit smaller. On others, you might be allowed to use only fly fishing gear. Why? Because that's what anglers want!

There are streams that have stretches called *Delayed Harvest*. That means you can't keep trout until mid-June. Before then and after Labor Day, all trout caught have to be released. This way, there are plenty of trout to be caught over and over again. These waters warm during the summer months. Trout have a tough time surviving then. That's why trout can be kept at that time. Some of the Delayed-Harvest areas are fly fishing only. Many can be fished with any artificial fly or lure.

There are some sections of special streams and rivers that can grow very big fish—and lots of them. These are what the biologists call *Trophy Trout waters*. On these waters the minimum size is very big. Fishing Creek in Clinton County and the Lackawanna River in Lackawanna County have Trophy Trout sections. The minimum size is 14 inches on these stretches and only two fish can be kept. The Susquehanna River has a *Trophy Bass* section. From Danville to the Holtwood Dam, bass must be 15 inches to be kept.

It takes lots of studies to figure out if a waterway can make trophy fish. Biologists first find out if there is enough food to make big fish. Then they look for lots of places for big fish to hide. Then they make sure the anglers want bigger fish from those waters. If all these things are right, the Commission changes the regulations. After a while, the biologists go back to these waters. They check the fish and the anglers again. They want to make sure the regulations keep working. The Commission uses special regulations to make fishing better—and more fun!

The Fish and Boat Commission does many things to protect and manage the fish resources of the state. But everything we do is about people. We need to know as much about the people who fish and boat, as the things they fish for. We can study people, just as we study fish. The science of studying people is called sociology—but we don't really call it that.

Biologists survey or study a waterway to learn what is there. We also survey the people who fish and boat. The Commission just did a big study where many people were asked lots of questions. Here are some examples of the questions we asked:

Why do you fish?
Who do you fish with?
Is fishing important to you?
Is the Fish and Boat Commission doing a good job?



The answers to these questions are important to us. This survey was like getting a report card. Our customers tell us we are doing a pretty good job. They also tell us what is important to them. Guess what they said? Going fishing was very important to many of them, and they fished with friends and family. They also said they wanted us to spend more time and money on protecting habitat. Education was also important to them.

Just like a report card, this study shows us things we can do better. Some people don't fish anymore because they don't have time. Others say they don't have anyone to go fishing with anymore. So, if someone in your family doesn't fish anymore—take them fishing.

photo-Ted Walke

Where in Pennsylvania is Carmen Fishiego?

The Case of the Lifted Ladder

There is a traffic jam on the Lehigh River. American shad and other fish want to migrate up the Lehigh and they can't. Carmen and her cronies have stolen the Easton Dam Fish Ladder. This ladder is like a

set of stairs for the fish. They swim from step to step. Ladders help fish migrate past dams.

Which waterway will Carmen take the ladder to? Maybe they are moving it somewhere else. Maybe they will hold it for ransom.

Here are your clues:

The Crayola Crayon Factory took a large order for fishy colored crayons. The order was picked up by Pete Pickerel two days before the ladder disappeared.

The State Police reported seeing a big truck driven by Pete on the Northeast Extension of the Turnpike the day after the ladder was taken. They also spotted the same truck going west on Interstate 80.

Our radio at headquarters picked up this coded message: "Take the ladder to creek where the bird has no hair." What could this mean?

Your job, gumshoe, is to track Carmen down and recover the ladder. Only then can American shad, striped bass and other fish travel up the Lehigh River. Good luck!



Answer: Bald Eagle Creek in Centre County

WHAT KIND OF FISH IS THIS?

Can you identify this fish? Here are a few hints. It was caught in a stream in Lycoming County. It is not a rainbow trout, salmon or grass carp.



To find the answer, hold this section of the page upside-down and in front of a mirror.

can live as long as 10 years. grows to the size of the eggs are laid. fishery ditches the fishery eggs. The water also adds scales and a lot of air to the fish. The water fishery won't. Some water can be as big as 100 feet. Each trout and brook is caught by the water in its water. The water is the water. A water won't be of water. Fishery grows from April through June. The insects and water.

eat just about anything, including small fish. streams. Trout and brook often catch fishery. Fishery Pennsylvania. Fishery are common in Pennsylvania. Fishery is the largest minnow, but it is not native to fishery are the largest native minnow species. The fishery are members of the minnow family.

ANSWER: This is a fishery.



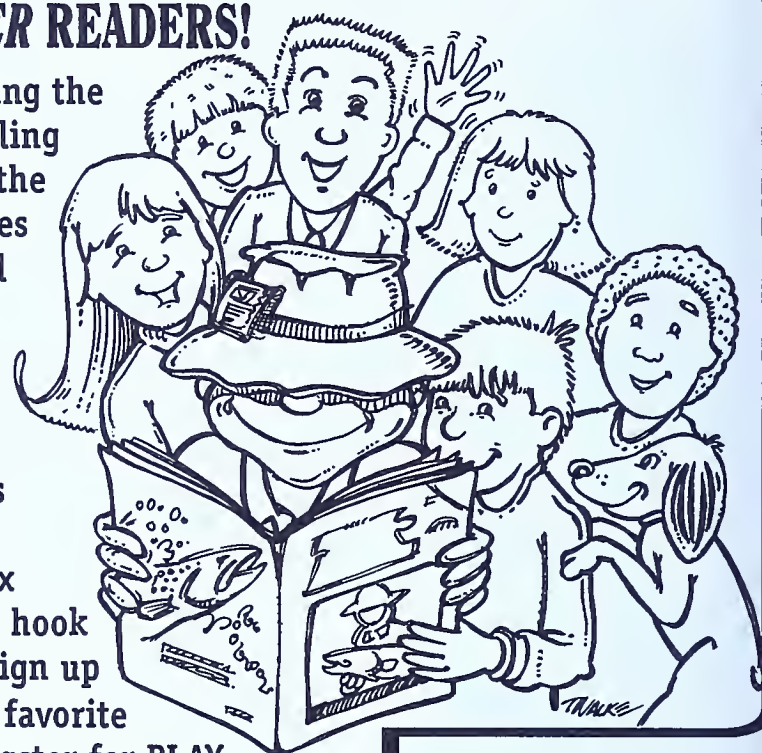
Pennsylvania League of Angling Youth
 Pennsylvania Fish & Boat Commission
 P.O. Box 67000
 Harrisburg, PA 17106-7000



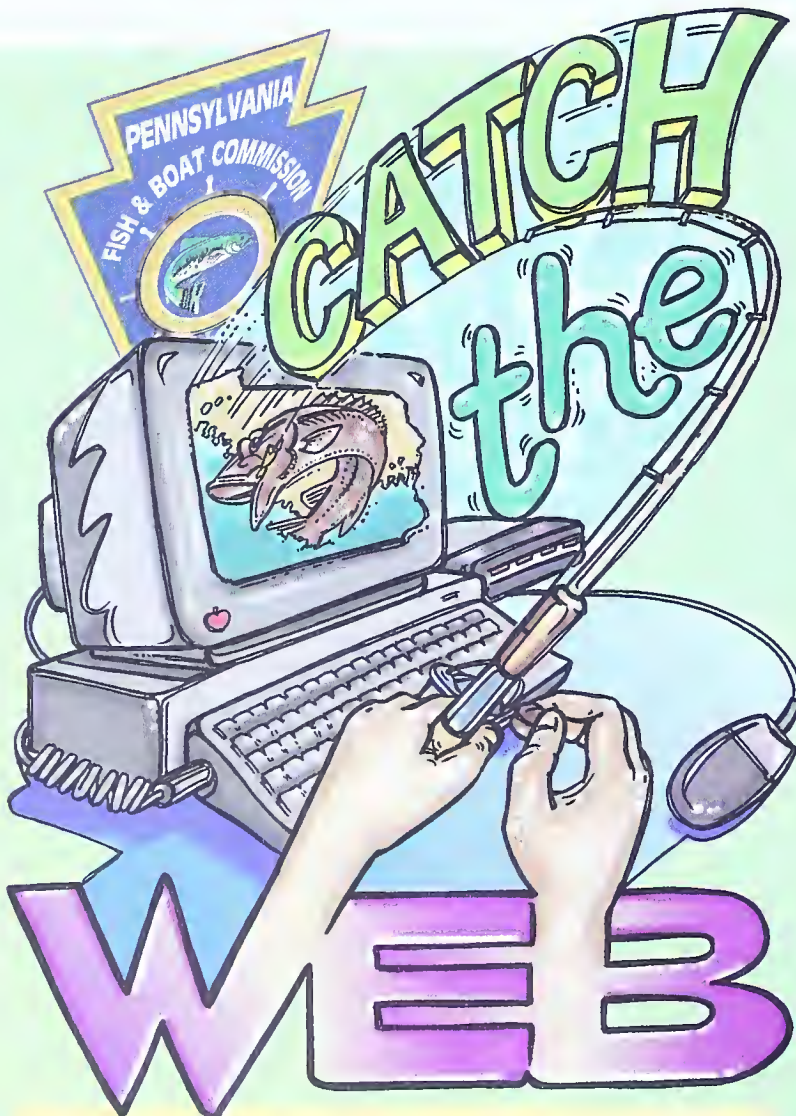
LIFE JACKETS
They Float
YOU DON'T!

HEY, ANGLER & BOATER READERS!

You can look forward to seeing the Pennsylvania League of Angling Youth (PLAY) newsletter in the *PA Angler & Boater* four times each year. But to get the full benefits of membership in PLAY, you need to complete the coupon below. Full membership in PLAY is only \$3.00 per year and members receive the PLAY Newsletter, a collectable patch, tacklebox stickers, a good luck fishing hook and several activity pages. Sign up



your favorite youngster for PLAY or be prepared to share your copy of *PA Angler & Boater*!



<http://www.state.pa.us/Fish>

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Writing Readers

Hooked

by Bob Klobuchar

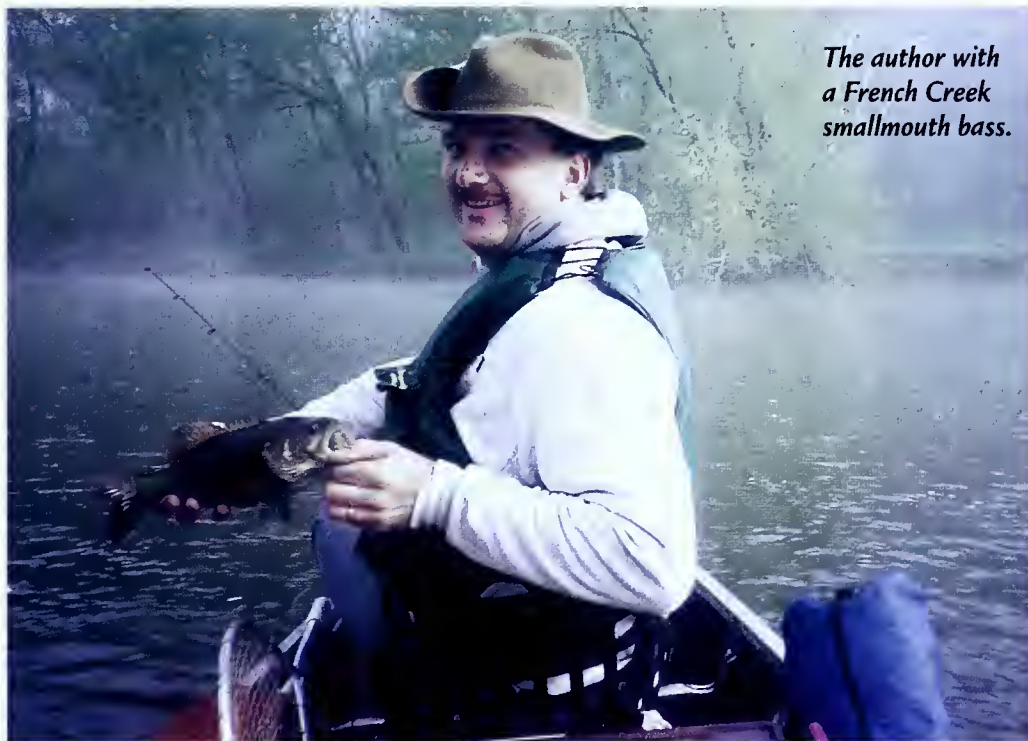
A co-worker of mine knew of my fishing interest and would talk of years gone by when he took an interest in the sport. I don't remember coaxing him very hard to try his luck again, but we soon agreed to attempt a canoe trip that would finish at his father's river-front camp. I don't think Joe was prepared for how that one trip was going to renew his interest.

We launched at an area where we easily could load the canoe and enter the water with only one hitch. Leaving my Blazer in the same area was not permitted. The solution was as simple as putting Joe in and driving downstream to an ice cream stand. It would be easy to park and slip through some woods to meet Joe streamside. Our separation would be short and uneventful.

A short time later I was on my hands and knees plowing through dense bushes hoping to make it to streamside before Joe passed by. I was thinking the next time he would park and I would coast down the lazy water to pick him up. When Joe arrived I was tiptoeing over rocks to keep from getting my shoes wet so soon. As he got closer I noticed he was wet up to his chest and our gear wasn't arranged quite as I remembered loading it. I banished any thoughts of making him do the woods next time and walked through the water to get to the canoe. Luckily he didn't capsize, but he sure did everything to prevent it—including jumping into four feet of stream at 7:00 a.m. Seems a run-in with a downed tree

gave him plenty of excitement. The details are still with Joe, but suffice it to say we had been served with plenty of excitement and the trip had hardly begun.

We were too excited to let Murphy's law disrupt our day, and we began to watch the laws of nature unfold before us. The brawny shoulders of carp broke the shallows at every turn. It seemed impossible to break their clumsy spawning rituals. An island full of Canada geese rustled, interrupted by our ritual, and we eased off to a more comfortable distance. We stared at each part of nature like children staring through a bakery window. We soaked



The author with a French Creek smallmouth bass.

up the image of every tree and flower, and left behind the pressures of the world.

It wasn't long before the first spunky smallmouth tightened my line. My heart was pounding with the beat only available through a successful cast.

"This is why I love French Creek, Joe, this is why I love the French," I said. By my third fish, Joe still hadn't scored.

"What-is that fish dead", he kidded. A rock bass I hooked had burrowed into a clump of vegetation and given up the fight. When I lifted him from the water there was a hook, a mouth and a big green blob. I then began to hope Joe would score because I wasn't going to hear the end of how wimpy that fish was until he caught one.

Two hours passed and the big moment approached. French Creek was about to join the Allegheny. We got out and pulled the canoe across the shallow merger. This would be the last spot where we would fight the shallows. A little rain fell to help ex-

press the sadness I felt leaving the French. It's a fabulous fishery and I'll never leave without promising to return.

As our bow met the Allegheny we sensed the character of our trip was about to change. The river was wider and a bit swifter. The trees were no longer hovering over us and the sky opened to a new beauty that would feed our starving eyes.

One thing hadn't changed, though. "Fish on", I cried. Joe's head snapped in the direction of my last cast.

"What is it," he quipped. "A walleye, not a keeper, though," I said. I boated him, admired his markings and returned him

like the others. "What a trip," I thought aloud. Joe's smile was more than appropriate punctuation to the thought. Joe then decided we had seen enough of man's creations. His goal was to put Franklin and the Joy Manufacturing water tower behind us. So we put to the task of rowing. A short time later we rounded a bend in the river that satisfied Joe's interest. Nothing but trees, river and a group of turkey vultures carving circles in the deep-blue sky.

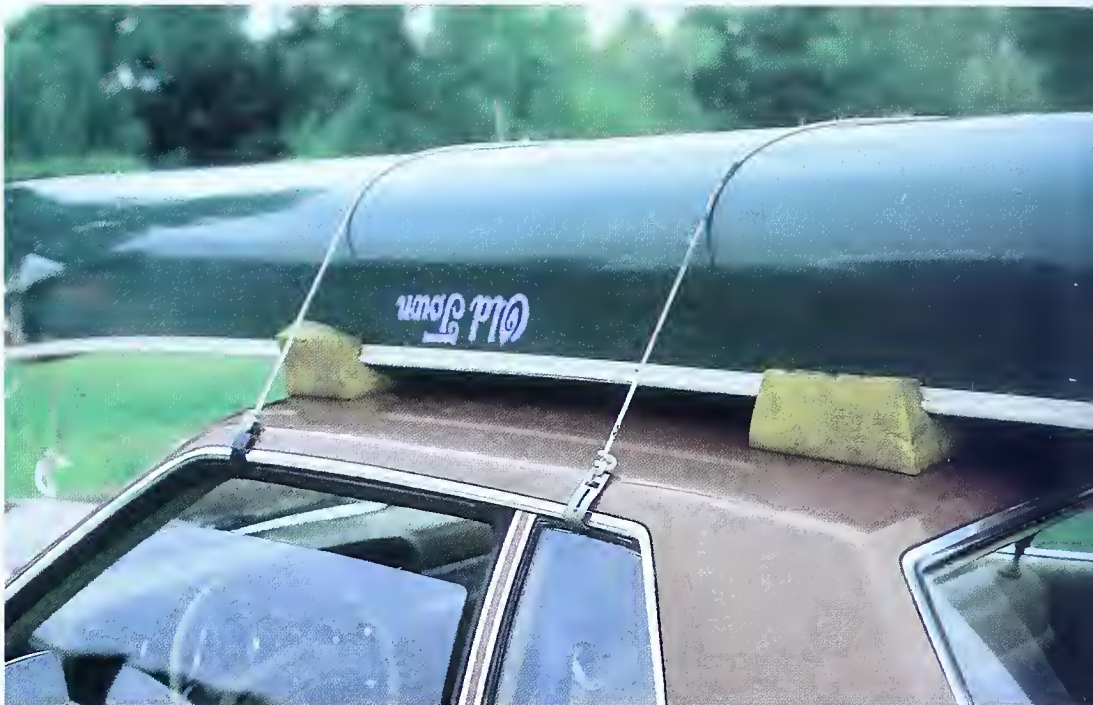
Joe bought a sub at a store in Franklin on the way in. It was now time to see what the girl who made it was snickering about as she handed it to him. He asked for the works, and she worked. It turned out to be a masterpiece. The grin on Joe's face was as long as that 16-inch sub.

Our stomachs were now full. The scenery was perfect and a fishy spot was approaching. Joe's moment had come. "I got one," he said. I turned to see the distinctive struggle of a bronzeback in the rocks to our left. Joe was beaming. It was now indeed the perfect day as he landed the trip's biggest fish. In the 10 minutes that followed I couldn't get Joe to say a word. He was so focused on catching another smallie, he could talk no more. When I finally broke the spell, he even laughed at his own behavior. Even though he laughed outwardly, inside he had chills. He hooked more than a fish. He was hooked once again on the sport. ☐

CAR TOP

Your Canoe!

by Cliff Jacobson



Every accomplished paddler I know has had at least one close encounter with a canoe that nearly became a kite. Fortunately, the Great Spirit has usually intervened at a critical moment and saved the day, for even recklessly secured canoes seldom fly off cars. Those that do commonly land out of harm's way with only broken hardware to evidence their flight. Hardly anyone ever gets hurt.

Nonetheless, good paddlers don't tempt fate; they know it pays to "rack their canoes right."

Rack 'em right!

Canoeists still mourn the passing of rain-gutters, which accept all kinds of clamp-on devices. No current system is as secure as racks that bolt directly to the drip eaves of the car. My '86 Chevy van and my wife's '80 Saab both have rain gutters—and like most canoeists, we plan to keep these cars forever. I'm convinced that the world's first closed cars had rain gutters because they were designed by canoeists for canoeists!

Regrettably, the days of the wonderful generic racks that attach to a car's drip eaves are over. With the exception of full-sized vans and a few sport utility vehicles, all of today's vehicles have airplane-style doors, which require specially fitted brackets. Thule and Yakima lead the way in gutterless designs and offer racks to fit nearly every car model.

Caution: The load brackets that come with gutterless carriers are built to fit the roof lines of specific vehicles. Do not jury-rig them to fit cars for which they are not designed!

Even if you don't plan to buy a second canoe, you may need to shuttle a friend's (and his friend's and his friend's), so be sure to order double-length (80 inches) cross-

bars—the factory-standard 48-inch carrier is too short to carry paired canoes.

Expect to pay around \$200 for a quality built car-top carrier and tie-down accessories. Locking bars are essential to prevent theft. Even then, many paddlers prefer to remove their expensive racks and store them inside their cars when they're on the river.

Never set canoes on hard, unpadded carriers—the gunnels are sure to be damaged. Here's how to protect your canoe, your car and your peace-of-mind:

1. Sew or duct-tape scrap carpeting around the crossbars. This ancient low-tech method is still the best way to protect fine woodwork. Most "show" canoes ride on old-fashioned carpeted racks. Carpeting tells the canoe world you care about your canoe!

2. Yakima, Quick'n Easy and a few other companies use tubular aluminum conduit (Yakima covers theirs with plastic) crossbars. Some canoeists armor the conduit with rubber heater hose—it slides on easily if you

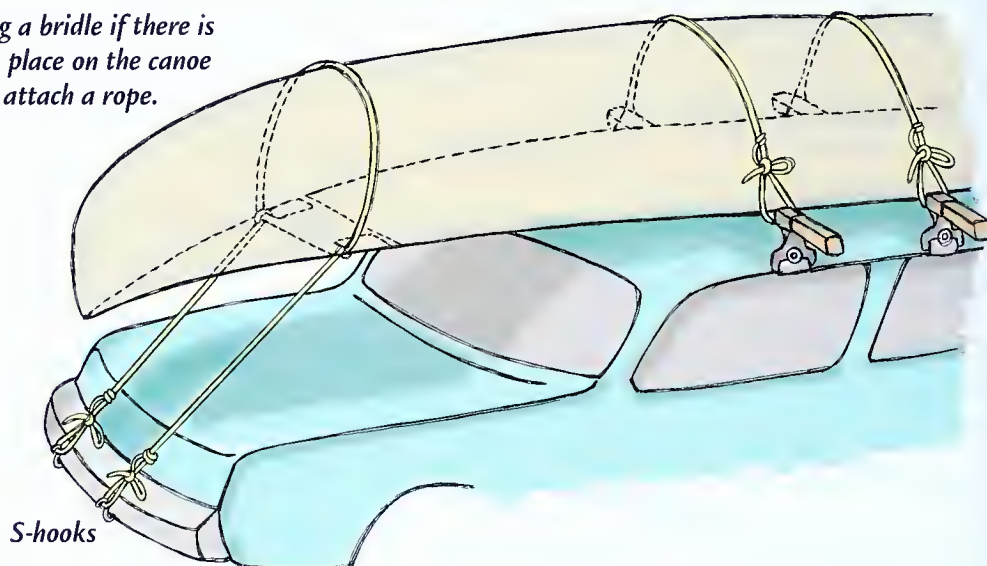
lubricate the rubber with brake fluid.

3. You can bolt L-shaped plastic "gunnel brackets" (an optional accessory) to the crossbars. The brackets provide a wide protective bearing surface for the canoe's gunnels and prevent the craft from shifting in wind—a safety advantage. If your canoe has wooden rails, you may want to glue closed-cell foam or scrap carpeting to the hard-plastic faces of the brackets.

Note: Makers of car-top carriers recommend that you use four "safety brackets" for each canoe you carry—one at each point the gunnels touch the crossbars. This solidly locates the canoe and keeps it from sliding sideways on the rack. However, loading a canoe on the safety brackets can be awkward, especially if your car has a high roof line and you frequently carry different-styled boats. The problem is that you must readjust the clamps to fit the dimensions of each new canoe you carry. You must also lift the canoe extra high to clear the outside clamps. Many paddlers dislike the hassle, so they omit the outside (roadside)

Run two separate ropes over the belly of each canoe.

Rig a bridle if there is no place on the canoe to attach a rope.



clamps. Wind-shear at highway speeds tends to force canoes to the right (curbside), so you really don't sacrifice much safety by eliminating the roadside clamp set.

Canoe cushions may be unreliable

This inexpensive rig (every marina has 'em) consists of two tie-down straps and four grooved foam blocks that snap onto the canoe's gunnels. Unlike conventional carriers, "canoe cushions" can be quickly installed and removed, and they're easily stored in the trunk of a small car. The downside is that you can carry only one canoe at a time, and the craft is questionably secure—more so if your car does not have rain gutters to which you can clamp the bellystraps. A fairly safe solution is to crack the side windows and run the belly ropes or straps through the car. Even then, I question the safety of this rig!

Tie-down procedures

Separately tie down each canoe you carry! Do it right and the canoe or canoes will remain rock-solid even at high speed. Here are the rules for safe travel:

1. Run two strong ropes or straps over the canoe and secure each to its respective crossbar. Do not string one long rope from crossbar to crossbar—it could loosen at highway speeds and the canoe could come off the car.

2. Attach two lines to the bow and stern of each canoe you carry. If there is no point of attachment (eye or hole) on the canoe, rig a bridle (see Figure 1). Secure each line separately to an eye-bolt set in the car's bumper. Or use plastic-encased (wrap 'em with tape) S-hooks if you don't want to drill holes in your bumpers. Locate S-hooks in notches so they won't slide along the bumper.

3. Don't use rubber tie-downs or elastic shock cords to secure canoes to cars! There should be a law against using these stretchy devices!

Straps or ropes?

Many modern canoeists, and nearly all commercial haulers, prefer reinforced nylon "cam-lock" straps to ropes. "Cam-lock" straps are fast to operate and undeniably secure, and you don't need to know special knots. But there are disadvantages:

1. Straps are expensive and may be stolen if you leave them on the car when you're on the river.

2. You must remember to put the straps on the crossbars before you rack the canoe(s). It's awkward if you do it the other way around.

3. Each strap must be passed over the canoe to the far side of the rack. The straps are too short to carry around the vehicle, and if you toss them over the top of the car, the buckle may strike the vehicle and damage it. What you need is a helpful friend.

4. If you carry two canoes side by side on the same rack, you must remember to install all four belly straps on the crossbars before you load either of the canoes. Forget this and you may have to climb the hood of the vehicle to reach the crossbars!

Most experienced canoeists admit that ropes are easier than straps. Leave them permanently tied to the racks when you're on the river and no one will take them. Load your canoe(s) and throw them over the top of the car—you won't damage the finish. Will they loosen on a long trip? Not much. Polypropylene, polyester and natural fibers stay drum-tight in any weather. Nylon ropes stretch slightly when they get wet. But cinching them takes seconds, if you use the right knots.

Knots you should know

The "power cinch," or trucker's knot, is the best knot for tying canoes on cars. It's a simple hitch, but one that requires practice, plus a fair amount of space to describe. A detailed lay-out—plus some other important canoeing knots—is planned for a future issue of *PA&B*. Meanwhile, here's an equally secure alternative you can master in seconds.

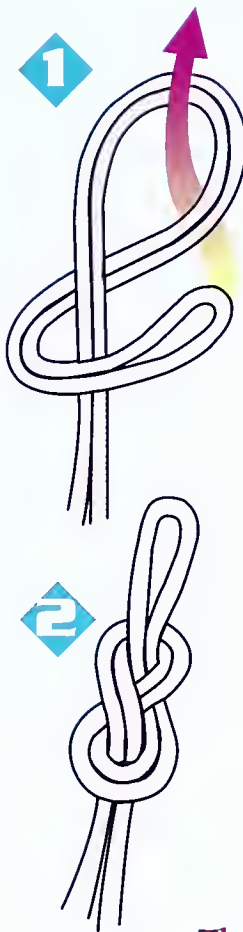
You need about 50 feet of 1/4-inch or 3/8-inch diameter rope (preferably nylon, polypropylene or polyester) for each canoe you tie down—more or less depending on the width of your car top and height of the racks. Cut two 15-foot lengths and two 10-foot lengths. Use the longer ropes for the "belly" of the canoe, the shorter ones to tie down the ends.

1. Make a large figure-eight loop in one end of each "belly" rope (see Figure 2).

2. Pass the rope around the crossbar of the rack, on one side of the canoe. Pull both ends together (equalize the length) and throw the doubled rope over the canoe to the other side of the car.

3. Run the free (no loop) end of the rope

Figure 8 Loop



under the crossbar and pass it through the figure-eight loop you tied. Adjust the figure-eight loop so it is nearly centered on the side of the canoe. Then, pull down hard on the free end of the rope to tighten the hitch. When it's as tight as you can make it, take a couple of half-hitches around the doubled rope.

Note that two doubled lines secure the canoe to the car rack. This is more secure than one pair of ropes and it has double the friction, so the canoe is less likely to shift in the wind. Adjustment is a snap—the only permanent knot is the loop on the end.

Caution: Tie "belly" ropes as close as possible to the sides of the canoe so the canoe won't shift sideways at highway speeds.

Now, to the ends: Double each short rope and secure the bent (doubled) end to the canoe—a hole in the deck, thwart just behind deck, "towing eye", etc. Tie the free ends of each line to S-hooks or eye-bolts on the bumper. Straps with cam-lock buckles can be used in place of ropes.

The rules for safe car-topping are easy to remember:

1. Use padded carriers that fit your car. Expect to pay big bucks for a reliable set-up.

2. Tie down each canoe separately—two ropes or straps over the belly and paired ropes at the bow and stern. End lines should secure to eye bolts in the bumpers or to padded S-hooks that ride in secure notches under the bumper. Never wind ropes around bumpers—sharp bumper edges (even plastic ones) can cut or abrade them.

3. Don't use rubber ropes or elastic bungee cords to secure canoes on cars.

4. Check the tightness of straps and ropes every time you stop for gas. If you carry multiple canoes, mount the fragile ones on the passenger side of the vehicle. Pad the sides of paired canoes if you don't use gunnel clamps.

5. If you observe an unsafe car-topping situation, politely call it to the attention of the driver. Don't follow the snobbish lead set by Marc and me at the start of this article.

And a final tip: Bolts and screws on canoes loosen over the long haul. Tighten all hardware before every major trip and you'll never have to deal with a broken seat, thwart or portage yoke.



Making Friends for French Creek

by Linda Steiner

French Creek is much too modest. Shy about displaying its talents, French Creek is a quiet, next-door-neighbor type of stream, flowing placidly through backyards, past cities and cottages, through farms and woodlands in northwestern Pennsylvania.

With its roots in the southwest corner of New York state, French Creek meanders in a vaguely backward letter "J" course for 117 miles, traversing Erie, Crawford and Venango counties in Pennsylvania, to end its wandering at the Allegheny River in Franklin. French Creek isn't a roaring, brawling, in-your-face kind of river. Yet these personality traits would better serve what

French Creek truly is—a stream so unique that one biologist said it should have "a glass dome overhead to preserve it."

Diversity

What is the talent that French Creek hides? An unrivaled diversity of water life, that in its variations tells the tale of a stream that has led several lives. Much of the original plant and animal species, including fishes and invertebrates, have been in the stream since the glaciers of the last Ice Age retreated 10,000 years ago. French Creek holds no fewer than 80 species of fish and 26 species of freshwater mussels, which gives it more diversity than any other stream

in Pennsylvania. French Creek has been called a "final refuge" for the heritage of natural variation it contains.

French Creek has so many types of fishes and invertebrates because it once flowed north into the region of the Great Lakes and St. Lawrence River. That gave it access to the types of water life that live in that North Atlantic drainage. French Creek was later turned south, to flow on its present course, by a glacier bearing down from the north. It became part of the Ohio River and Mississippi drainage and acquired flora and fauna from that watershed.

French Creek's fishes range from the usual bluegills, rock bass and smallmouth bass to the rare and precious, like the longhead darter, spotted darter and Tippecanoe darter. French Creek has 15 species of darters, often colorful, minnow-like fish related to perch and walleyes. Six darters are threatened or endangered species in Pennsylvania. Eleven types of freshwater mussels in French Creek are threatened or endangered in the state, and two, the club shell and northern riffleshell, are federally endangered species.

Science says that French Creek is a state, even a national, treasure, but until recently few folks knew about the stream riches in their own backyard. Like an undiscovered but intensely talented performer, French Creek was in need of a promoter, a publicity agent. With the entrance of the French Creek



To find out more about French Creek and the French Creek Project, or to be added to their mailing list, write to Box 172, Allegheny College, Meadville, PA 16335; phone (814)332-2946; fax (814)333-8149; e-mail frenchcreek@aol.com; or visit their website at <http://www.alleg.edu>.

Project and its director, Brian Hill, the stream is well on its way to becoming a star.

Brian Hill, with his ready smile and quiet voice, seems to reflect the stream itself. He's not an in-your-face kind of personality either, but like French Creek, the intensity runs deeper. Hill's committed, even driven, to getting the word out about the watershed, building support to protect the stream and making friends for the creek.

The project

Hill says the French Creek Project is completing the second year of a five-year plan that has three goals: To raise public awareness of the stream's value through an aggressive public education effort; to be a catalyst for the development of a watershed association composed of local people who are committed to protecting and enhancing the stream's water quality; and to protect the endangered species that make French Creek irreplaceable.

It doesn't hurt his rapport with area residents that Hill is a Meadville native himself. After college degrees and jobs in conservation elsewhere, Hill has come home

again with the French Creek Project. The project's offices, with a full-time staff of two, Hill and administrative assistant Hardy VanRy, is headquartered in Allegheny College, on the north side of Meadville. Assisting the effort is a corps of college interns—Allegheny College has a fine environmental science program, says Hill—and several dozen community volunteers.

The project also has a 30-person advisory committee, composed of a diversity that rivals the creek's: Local businessmen, property owners, sportsmen, conservationists, regional planners and government officials. "It's important to get everybody involved," says Hill, adding that the project has had more success by embracing compromise.

Making friends

Just how does the French Creek Project make friends for French Creek? Inform-

ing the public about the stream has meant approaches that range from developing a school curriculum to going door to door to stream-edge cottage and homeowners with leaflets about the creek. Two thousand people in French Creek's mostly rural watershed are now on the mailing list and receive regular updates on the project, interesting tidbits about wildlife species in and around French Creek, and useful information, like canoe access locations and tips on what they can do to improve water quality.

Last fall, the project placed displays in 12 post offices in towns along French Creek, focusing on the stream's endangered species. The French Creek Project has also worked actively with local and regional media. Several Western Pennsylvania Conservancy corporate-members, media and staff float trips down French Creek helped

the stream gain additional attention and support. Hill and Hardy and their volunteers have reached nearly 4,000 people in presentations and slide shows for local civic groups, schools, businesses and other organizations. The French Creek Project even has an Internet home page. But there's still outreach needed. Hill says even now he meets people who say they haven't heard about the project or the special attributes of French Creek.

Involving school districts with the creek is a high priority. The French Creek Project has conducted two teacher workshops, with educators attending from the whole length of the creek, Sherman, New York to Rocky Grove, Pennsylvania. Teacher workshops are planned for each year of the project, says Hill. The environmental education curriculum is entitled "The French Creek: A Route to the Future," and it's appropriate for grades kindergarten through 12. Hill says that of the teachers who attended the workshops, nearly 100 percent report they are using the curriculum in their classrooms.

The project is also monitoring French Creek's water quality with several high schools, and students are encouraged to find answers to what their water testing shows. For example, some high readings mean too many nutrients are entering the stream, and point toward the need for control of farmland and lawn run-off and improved waste treatment facilities. An added benefit to school children studying the stream, says Hill, is that they go home and tell their parents what they're learning about French Creek. Hill hopes the total effort will "significantly bump up the knowledge level about French Creek," and make people stop and think about what affects the stream.

French Creek's biggest problem, says Hill, is nonpoint source pollution—substances that degrade water quality but do not come from an outflow pipe, which



Making Friends for French Creek

would be a type of point-source pollution, but from many places. Nonpoint source pollutions are stubborn of solution, but not impossible to correct. They include the sediments from dirt roads and stream bank erosion, nutrient overloading from farms, and pesticides and other chemicals from lawn care and agriculture.

The pollutants are coming, says Hill, more from French Creek's tributaries than along its main stem. Meadville's overburdened and outdated sewage treatment plant has been a major problem for many years, but the city will have a new facility on line by the fall of 1998. Sewage rates have been raised to pay for the new system. Hill says that unlike before the French Creek Project came to town, there is now "no substantial objection" to the new sewage treatment plant, because of the education the public has received about how the facility will help the stream.

Working with landowners

Chipping away at nonpoint source pollution, the French Creek Project has been working with landowners to restore stream banks, fence cattle out of streams, and encourage natural vegetation as a buffer between fields and streams. However, Hill says this is a project goal in which they could use more success. "We've been doing two or three stream bank fencing, revegetation and stream stabilization projects a summer, but we'd like to step that up to three or four," he says. Where the project is gaining ground is when landowner neighbor tells neighbor about what the project has done for him.

The French Creek Project pays 75 percent of the cost of a stream bank restoration project, and 25 percent is the responsibility of the landowner, or anyone else who may want to contribute. The 25 percent share can be in labor rather than money, so the stream work doesn't have to cost the farmer a thing, especially when volunteers lend a hand, as the Crawford Conservation Club has done.

Fencing livestock out of a stream is healthier for cattle, plus the stream stops receiving unneeded fertilizer and its margins are not worn down to mud. The French Creek Project's stream fix-up also includes replanting the banks with natu-



ral vegetation, like willows, and rip-rapping exposed soil on creek banks, stabilizing them with rock. "We're trying to replicate natural conditions that exist along the stream," says Hill, "so the erosion rate is slower and the stream behaves more naturally."

To help identify the hotspots that are making problems for French Creek, the project is working to develop a Geographic Information System. This will give them layers of data to work with, says Hill. They will be able to overlay maps of the creek and its tributaries with maps of soil types, land uses, forested and open areas, urban centers, etc. "We'll be able to see where we have priority areas for protection, like where there is no vegetative buffer along a stream edge," says Hill. The project is working with local governments, which Hill says will need to make some decisions on community and land use planning. Working with landowners is important in French Creek's sprawling watershed—it's more than 90 percent privately owned.

Project sponsors

The French Creek Project is sponsored by the Western Pennsylvania Conservancy, a land and natural resource conservation organization; the Pennsylvania Environmental Council, which provides environmental education and environmental protection advocacy; and Allegheny College. The Western Pennsylvania Conservancy brought "good science" to the project, says Hill, with its records of what lives in the stream, "and the Pennsylvania Environmental Council educates, so it's a good marriage for both organizations."

Major funding for the French Creek Project comes from the Heinz Endowments and the Pennsylvania Department of Environmental Protection's Non-point Source Pollution Program (Section 319 of the

Federal Clean Water Act). Corporate supporters are Dad's Products Co., Lord Corporation, PPG Industries, and Moody and Associates. Although grateful for the help of these businesses, Hill says the project needs to be more aggressive about expanding corporate sponsorships.

The project is also supported by the Conneaut Lake and French Creek Valley Conservancy, a group whose name speaks its mission. Hill hopes the local conservancy will be the nucleus of a river keepers network.

What happens after the French Creek Project's original five years of operation are up? Paul Wiegman, of the Western Pennsylvania Conservancy, doesn't see the project ending in the year 2000. "We'll try to continue doing what we're doing and make the position there a permanent thing," says Wiegman. "We don't feel we'll get to a place where the effort will be done."

Wiegman says the Pittsburgh-based Western Pennsylvania Conservancy's principal interest in French Creek began when the organization inventoried the stream's freshwater invertebrates, its clams and mussels. Finding many rare and endangered species, the conservancy looked at the creek and the whole watershed, and saw a conservation need.

Protecting a stream by making friends for it, using the type of education, outreach and action methods of the French Creek Project, says Wiegman, "is not only a new thing for us at French Creek, it's a new thing, period, for everybody in conservation." Brian Hill says that a vision plan, to guide implementation of the French Creek Project's objectives and cement its purpose, is nearing completion. A position at center stage has been long overdue for French Creek and the much-deserved spotlight is finally on this hometown talent.





Casting Lines

with
Dave Wolf

Special Regulations

The fish were rising steadily. Expanding quivering rings of liquid, enough to make my day. Small midges emerged and the occasional ant and beetle stumbled into the flow. The trout rose, great and small, their snout inches below our imitations; visible snouts that quickened the pulse and tightened one's shoulders. We had lengthened our leaders, Norm and I, and the final tippet was 8x, the smallest we could find. Norm claimed his tested around 2.2 pounds, while mine was just shy of two pounds.

"Some big trout in there. Think my tippet will hold?" Norm asked.

"I doubt it. Not with an old whaler like you on the other end." I said. I like to tease Norm about his days off Long Island, fishing for anything that swam in salt or brackish water. He deserved it. I could not count the times he had chided me about the fish we caught not being as big as what he had once used for bait.

We caught fish under the sweltering sun in the placid pool that waked only when we or the fish did. We lost fish, caught some and "jug" a lot more, never quite setting the hook; not unusual in "fine and fair" fishing.

The voices from the bank came as a surprise. "You get all the good water." The larger of the two men said. Norm was quick at most things he did and had a temper to match. I knew by his red face that the statement wasn't going to wash.

"What!" Norm shouted, breaking the tranquil silence of the northern valley.

"You heard me," the man shouted back. "You catch-and-release guys get all the good water." I heard Norm's reel click as he began to reel in his line.

"Look, salty dog," I whispered to Norm, "fly fishing is supposed to be a gentle sport."

"I'll give you gentle." He whispered back. I reeled in and waded downstream past Norm, and said, "I'll handle this."

"You better."

I waded to the bank and shook the gentleman's hand. I extended my hand to the other man and drew no response.

"The fishing is terrible downstream. We haven't taken a fish all day and we come up here and it looks like you guys are fishing in a fish bowl... and we don't like it," the larger man said.

"Well, I can tell you the fishing is just as good upstream, and I can also tell you that this section of stream is stocked with fewer trout than the sections down below. They call it 'maintenance stocking.'"

"Is that so?" The smaller blonde-haired man said. "Well then, tell me, why do you still have so many fish left?"

"We don't kill any," I said flatly.

By now, Norm was on the bridge beside me. Norm was a strong, muscular man, not all that tall, but as proprietor of a local garage, he was always lugging something around and it showed. We were on Kettle Creek, in Potter County, and much of the water below the Catch-and-Release area had warmed and lost enough oxygen that the fish had moved from many sections of water. But there was even colder water upstream and the boundaries of the project did nothing to hold trout. Trout, I assumed, paid no attention to cables with signs stating, "Catch and Release."

The men calmed and walked from the bridge half smiling. They were decent folk—they simply did not understand the reason for such areas, or why they held fish, when many other sections of the stream held few, if any. Heck, there were sections of the project water that lacked good habitat and held only a few trout.

Norm stomped off without a word and went back to his fishing. I knew the men angered him, but I also knew that anyone who disturbed Norm's precious fishing time would do the same.

Specially regulated waters have grown in popularity since that day, proven by the worn paths up and down the banks of nearly all the project waters in the state. I'm particularly fond of Delayed Harvest and Heritage Trout Angling regulations.

The first is a wise use of often frowned upon stocked trout. My experience has been that stocked trout caught and released a number of times become wiser than their wild brethren. I have watched and imagined those fish that rise inches beneath my fly act as if they were saying, "Need a little help tying those spun deer-hair beetles, Wolf? That's a size 16, right?"

And on Fisherman's Paradise, in Centre County, I had an outlandish-sized brown trout actually bump my grasshopper imitation with his snout—not once or twice, but three times. Apparently he did not like the feel of the material I had used to dress my fly.

I find it humbling when trout, with an apparently pea-sized brain, become smarter than I; after all, they claim that humans are a higher life form.

Many specially regulated waters have accepted spin fishermen and fly fishermen. I was once concerned with the introduction of spin fishermen,

I admit. Not because I am a fly fishing snob, but because I thought the different fishing techniques would not blend. But except for the rare occasion, the marriage has been a good one and the outcome has led to more folks wanting special regulations.

Of course, not all anglers agree. I met a man on Fishing Creek in Clinton County who had not fished in years.

"Gave it up," he told me. "The fishing was poor and I caught nothing but small fish. Then I heard all the rumors about how good the fishing was here, since they put a Trophy Trout Project on the creek."

"How did you do tonight," I asked?

"Great."

"So you like the new regulations?"

"Kind of."

"What do you mean?"

"Well, I would like to take some of the smaller fish home."

He disappeared into the night before I could reply; I'm glad because I had no answer for him.



Note: A complete list of specially regulated waters and the laws governing these waters begins on page 24 of the 1997 Summary of Fishing Regulations and Laws.



Cast Caught



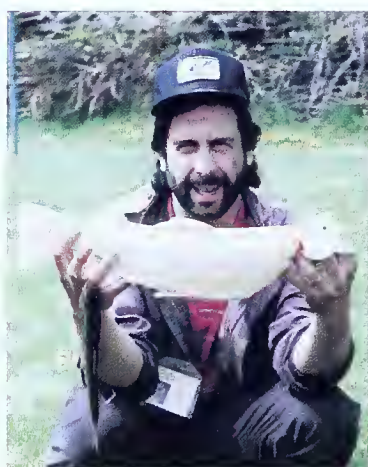
Lou Fix shows off the French Creek walleye his brother, George, hooked. The fish weighed 10 pounds and was 30 inches long.



Marvin Goetz, Greencastle, hoists the 4-pound, 15-ounce smallmouth bass that took a jig in the Susquehanna River. After carefully weighing and photographing the smallie, Goetz released the fish.



Priscilla Cromwell, Airville, shows the brook trout she caught in Loyalsock Creek. The fish, caught on a worm, weighed 5 1/2 pounds and was 24 inches long.



Mark R. Michaux shows the 5-pound, 2-ounce golden rainbow trout he caught in Donegal Lake, Westmoreland County. The 22-inch fish took a jighead with a nightcrawler. Nice fish, Mark!



This smallmouth bass earned a Junior Angler Award for North Bend resident Aaron Penton. The fish, caught at the Alvin R. Bush Dam, measured 21 1/2 inches long and weighed 4 pounds, 9 ounces.



Jack Rauenzahn landed this 33-inch rainbow trout. The fish weighed 13 pounds, 11 ounces. Nice fish, Jack!



Nine-year-old Matthew Leonard, Lancaster, proudly displays the smallmouth bass he hooked while fishing on the Susquehanna River. The fish was caught on a nightcrawler and measured 17 inches long. Great job, Matthew!



Johnstown resident Sam Ross, Jr., used a minnow to convince this crappie to strike. The fish, caught in Quemahoning Reservoir, Somerset County, weighed 1 pound, 8 ounces and measured 14 1/2 inches in length.

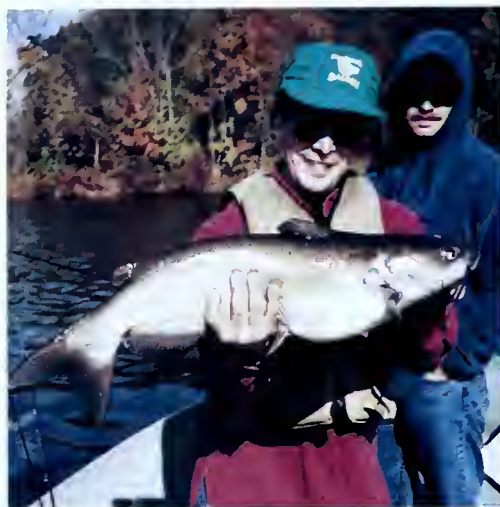


Dan Schirato, Nanty-Glo, was fishing a red worm in Conococheague Creek when he caught this nice brown trout. The fish measured 29 1/2 inches in length and weighed 10 pounds, 9.6 ounces.

Memories To Last A Lifetime



Donald Gower is justly proud of the 6.57-pound rainbow trout he caught in Twin Lakes.



Bethlehem resident Ken Peoples hooked this 28-inch channel catfish while fishing on Lake Nockamixon. The fish was released after a quick photo. Nice going, Ken!



Shawn Staley, Pittsburgh, caught these walleyes while fishing on Lake Erie. The larger of the two weighed 9 pounds, 15 ounces and measured 30 1/4 inches long. The smaller fish was 29 inches long and weighed 9 pounds, 10 ounces.



Marietta resident Juan Soto hooked this brown trout while fishing the Little Juniata in Huntingdon County. The fish weighed 2 pounds and was 14 inches long.



James Walker, Erie, caught and released this largemouth bass while fishing on Misery Bay, Presque Isle State Park. Nice job, James!



Laura Olczak, Berlin, shows off the nice limit stringer of brook trout she caught in Stonycreek River, Somerset County.



Joe Bentley caught this 23.91-pound flathead catfish. The fish measured 36 inches long with a girth of 23 inches.



Brenda Zerbe, Fredericksburg, shows off the 18-inch, 3-pound smallmouth bass she caught. Nice fish, Brenda!

Feeding Trough Walleyes: **Summertime's Hot River Pattern**

by Mike Bleech



A feeding trough is a slightly deeper trench in an otherwise shallow, mild riffle. With surrounding water generally less than 3 feet deep, the trough might bottom out at 5 to 8 feet. The current gouges troughs during periods of heavy flow. The lightest material—sand and gravel—is washed out, leaving larger rocks and boulders.

Gliding over a long, gentle riffle on the upper Susquehanna, I cast unenthusiastically for smallmouths. A mild breeze made the temperature bearable, but the bass didn't seem to appreciate the beauty of the pale-blue sky. I'd caught a few bass just after launching at Athens, early in the morning. For the past couple of hours, though, I might as well have been fishing in the other end of the canoe. My mind was elsewhere. So when a walleye finally snagged itself on the treble hooks of my minnow-shaped crankbait, by the time I thought of it, it was too late to note a landmark where it struck.

After releasing the walleye, I picked up a paddle and stroked the canoe out of the current. Instead of paddling back upriver, I anchored the canoe in shallow water and then walked upriver, looking for something in that riffle that might hold walleyes.

For the most part, the riffle was less than three feet deep—hardly what you would call walleye habitat. Then I saw a dark strip of water, indicating a deeper trough. Wading within easy reach, I cast upriver and beyond the trough so the lure would be at its maximum depth when it reached the trough. When it arrived there I paused, then twitched the lure a few times to make it look like an injured minnow, and to make it stay in the trough as long as possible.

Even though my enthusiasm for fishing had been rekindled, it was still a very pleasant surprise when another walleye struck. Three more walleyes, plus a 14-inch smallmouth, proved once again that this summertime walleye pattern I learned on the middle Allegheny River works elsewhere.

Many fishing patterns are relevant to just one place and time. Fishing river troughs for walleyes can be productive on any good

walleye river that has this kind of structure. Look for it anywhere in the middle Allegheny River, from the Kinzua Dam to Interstate 80, in parts of the Juniata River, in the upper Susquehanna River and its West Branch downriver from Williamsport, and elsewhere.

Troughs

Walleyes are fish of many contradictions. Usually they appear to shun bright light, but some of the hottest fishing patterns take place under bright skies. Walleyes are seldom abundant in shallow lakes and rivers, yet they often use the shallower parts of deep waterways. One of the hottest walleye fishing patterns in some rivers has gone unnoticed by many anglers, even serious walleye anglers, because it is contradictory to what they expect. Few anglers expect to catch walleyes, including a bet-

ter than fair percentage of big walleyes, from shallow water during daylight hours. I call the pattern "feeding trough walleyes."

The feeding trough is a slightly deeper trench in an otherwise shallow, mild riffle. With surrounding water generally less than 3 feet deep, the trough might bottom out at 5 to 8 feet.

Current gouges troughs during periods of heavy flow. The lightest material—sand and gravel—is washed out, leaving larger rocks and boulders.

Walleyes use troughs during low-flow periods, when the current is relatively mild. Boulders break the mild current enough close to the bottom to create a condition in which bottom-hugging walleyes don't have to expend much energy fighting current, yet they are just a flip of the tail away from any food passing overhead.

Recognizing troughs

You can recognize some troughs by color. The browns, greens and grays of rocks, sand, patches of weeds and moss show through the shallower water. The bottom disappears, or at least fades, in troughs, which makes the water appear darker because less sunlight is reflected from the bottom.

Another clue to the location of troughs can be the shape of the water surface. Most of a shallow riffle is topped with angular waves and ripples. Often, not always, the surface above a trough swirls. Swirling water that cuts light penetration, I believe, is a key element in many good walleye troughs.

One of my favorite troughs is on the Allegheny River a few miles north of Tidioute. It is only about 4 1/2 feet deep during normal summer river flow, and about 50 feet long. Without swirls, you could easily see every pebble on the bottom in that depth. Yet, I have caught several walleyes there in the 5-pound to 7-pound class under bright, midday sun. This trough is in a shallow riffle at least 3/4-mile long. I found it with binoculars from a dirt road high on the hillside above the river, by its just slightly darker color.

Walleyes probably do not like bright light. But swirling water, apparently, diffuses the light enough to satisfy them. Or perhaps we have the relationship of walleyes to light completely wrong. We might assume that walleyes avoid bright light because they have proportionately big eyes. However, it might be a matter

of security. Perhaps bright light makes them feel vulnerable.

Some troughs are considerably deeper and longer, though there is some break-off point in size where we should, instead of a trough, call it a pool, or just a long stretch of deep water. Not far from my home on the Allegheny there is a riffle about 1/4-mile long with a trough near its center that is about 8 feet deep. The trough is about 100 yards long, but I still call it a trough and not a pool because it has no slow-moving water. But if it were much bigger, it would not be what I term a "trough." A feeding trough is the best walleye habitat in a much larger stretch of poor walleye habitat, and small enough to concentrate walleyes.

Tricky fishing

Fishing troughs can be tricky. Swirling water above and between, and the relatively slow-moving water close to the bottom where the walleyes are, translates into numerous cross-currents that make it difficult to control the location of a lure or bait. This is another reason many anglers have not discovered this pattern. While float fishing with lures intended for small-mouth bass in relatively shallow water, these lures probably will not get deep enough into a trough to prompt a strike, unless you are lucky enough to be there when the walleyes are very active.

Sometimes when walleyes are very active, they strike lures close to the surface. But any other time, you probably need to get lures deeper into the trough than the depth of the bottom surrounding the trough. For example, suppose you are fishing a trough that is 5 1/2 feet at its deepest. The surrounding water is 2-1/2 to 3 feet deep. Your lure should run at least 4 feet deep.

Lures

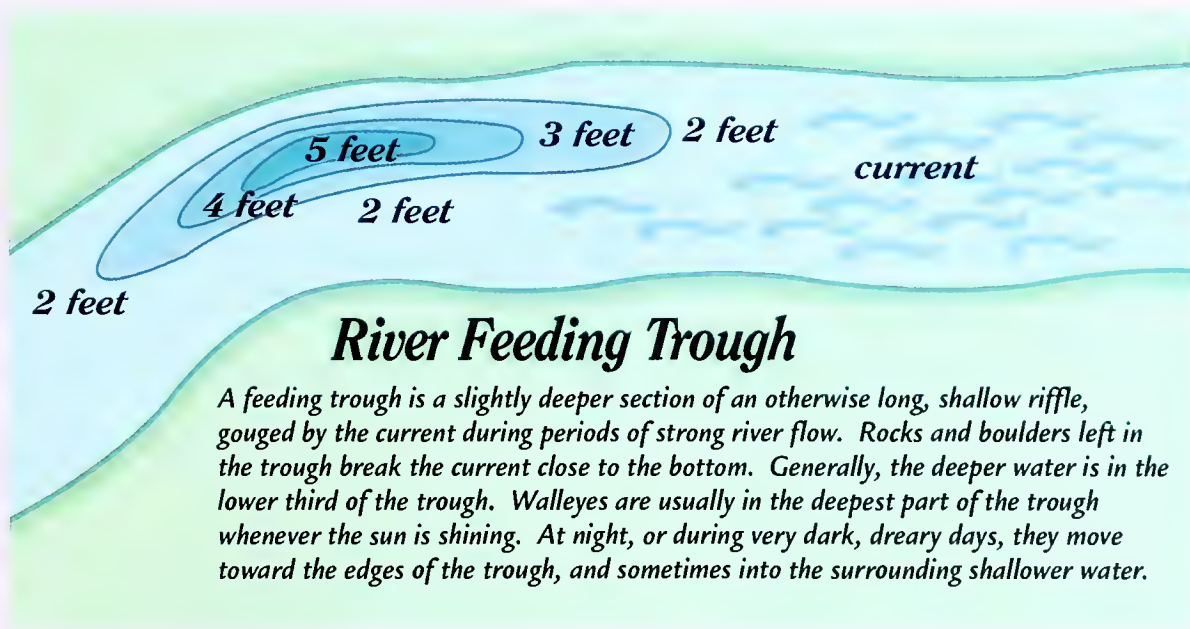
Choosing from lures most serious walleye anglers already have in their tackle boxes, you will be well-prepared to fish feeding troughs if you carry a few floating minnow lures, a small selection of diving crankbaits that dive 5 to 8 feet, and 1/8-ounce leadheads with an assortment of plastic bodies.

Baitfishing simplifies the depth problem somewhat, because you can add whatever weight it takes to bounce the bait along the bottom. However, this unavoidably results in frequent snags. One way to avoid the snags is to use just enough weight to get the bait close to the bottom, maybe ticking the higher rocks. This is not precise control, but some excellent river anglers do it very skillfully.

Another simpler way to avoid snags is to use a slip bobber. It is a very simple matter, through trial and error, to adjust the line below the slip bobber so the bait drifts exactly where you want it.

One criticism against bobbers in this situation is the difficulty in setting hooks with the 90-degree angle in the line created by the bobber connection. But without a bobber the line is subject to cross-currents that probably cause even worse line bow. The bobber keeps most of the line out of the water, or on the surface where you can see and control it by mending. I think bobbers might be the best solution to baitfishing for walleyes in many troughs.

Many of us Pennsylvanians who cut our teeth on stream trout fishing are concerned with natural drifts—letting the current carry the bait as it would a helpless insect. This is not necessary for walleyes. Most of the things walleyes eat, minnows and other small fish, are very mobile. It would be normal for them to move in directions



Feeding Trough Walleyes: Summertime's Hot River Pattern



A chub, "riffle runner," is lively and makes a good walleye bait.

different from the current. The main thing you need to be concerned with is getting the bait close enough to the walleyes to entice a strike.

Shiners and chubs

Though anglers feed walleyes shiners and other bait shop minnows, a large share of river walleye diets consist of darters and sand pike, which inhabit this rock- and boulder-strewn trough habitat. Whenever I fillet a walleye I check stomach contents, so this I know for a fact. Yet, years of trial prove to my complete satisfaction that shiners make better bait than the natural food found in river troughs, with one notable exception—chubs.

The liveliest of any bait I have seen, chubs can be caught in riffles with a small, barbless hook and a small piece of worm. Along the middle Allegheny, they are called "riffle runners." I have identified some as streamline chubs, but other species might be just as good. You know you have the right chubs if they try to jump out of the bait bucket every time you lift the lid.

If the weather is cool enough to keep them alive, emerald or spot-tail shiners are fine baits. Common shiners and even golden shiners work. Nightcrawlers might be even better, at times. At any rate, they are less bother than minnows.

Lively minnows very important. I have experimented with this many times. It has not been unusual to drift fresh but lifeless minnows a dozen times through a trough without a strike, switch to a lively minnow and then catch a walleye on the next drift.

I usually fish troughs from the perpendicular angle. The cast should be above the trough, so the bait has enough drifting

distance to sink close to the bottom before reaching the trough. Otherwise it will be too high for fish in the front of the trough. Actually, this position in the trough is more often held by smallmouths or trout than by walleyes. Walleyes are more apt to be in the middle, usually the deepest part of the trough, at least when the sun is shining.

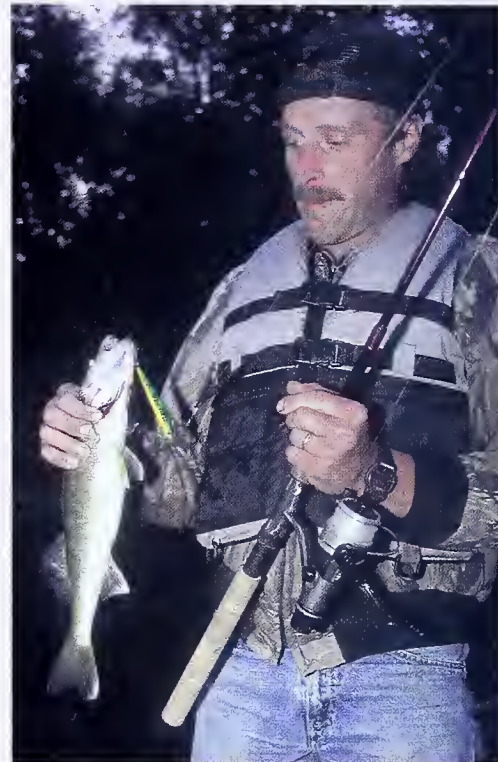
Walleyes lie in some troughs somewhat in the manner trout lie in pools, behind boulders, waiting to ambush food. They tend to be opportunistic feeders. If you get the right bait or lure close enough, a walleye will strike. This is most noticeable in shallower troughs, where you can see the boulders. Visualizing this situation helps you understand how thoroughly troughs should be fished. Try to cover every square foot of a trough.

Any time the river is at normal summer flow, I have confidence that walleyes will be active in troughs if they are active anywhere. So I devote a good deal of effort to each trough, trying several fishing tactics. First, I twitch a floating minnow lure as I drift past the trough. Next, I fish deeper with a jig. Then, to finish, I drift bait through the trough. This procedure takes the most active fish first.

Often, the first pass with a floating minnow lure entices a strike from a trout or a smallmouth bass. Walleyes are not the only gamefish that inhabit troughs. Both trout and smallmouths are far more likely than walleyes to rise from a trough to a shallow-running lure. The largest walleyes usually come from deep in the trough, when the sun is in the sky.

The deepest water in typical troughs is at least two-thirds of the distance from head

to tail. Current is constantly pushing bottom material into the up-current end, creating a gently tapering slope, sometimes with a more abrupt dropoff at the end, leading into the heart of the trough.



Night fishing

Troughs should be approached in a different manner at night. Under the cover of darkness, walleyes that spent the day in troughs spread into shallower water. Smaller walleyes, and by "smaller" I do not mean they are all less than 15 inches long, might move 100 feet or farther from the troughs. But I have seldom encountered walleyes any larger than about 3 pounds more than a few feet from the edges of troughs. Key nighttime spots for big walleyes are around the edges of troughs, seldom shallower than 3 feet.

One of the best big walleye patterns is casting floating minnow lures along the edges of troughs at night. This is a lot easier than messing with bait in the dark, and you will get far fewer snags than you would with jigs. Floating minnow lures—Thunderstick, Rapala Minnow, Rebel Minnow, Bomber Long A, for example—imitate the main food of big walleyes. And by manipulating retrieve speed, they can be worked at the proper depth. If you are really serious about catching big walleyes, use minnow lures that are at least 5 inches long.

Night or day, river troughs provide good walleye action from shortly after the spawn, during mid-April to late April, and through the summer.



Stanley R. Long: *50 Years a Deputy*

by Terry Brady



Shake his bear paw-like hand and the grip is strong and steady, like the flow of the Lehigh River after a three-day rain. In his face one finds the warmth of a mid-July sun breaking over the far shore of Leaser Lake. In his eyes still dances the excitement of 6-year-olds staking out their spot on Jordan Creek on opening day of the trout season.

To the banks of the Little Lehigh he brings the wisdom of one who has seen the changes on this Lehigh County waterway.

If you come to appreciate and enjoy, you'll see the caring grandparent that he is. Always encouraging the young, quick with a joke and a smile. Come to despoil, to litter or poach, and you'll meet an ex-Marine intent on enforcing the law.

Over a half-century ago Stanley R. Long first accepted the badge of a "special warden" of the Pennsylvania Fish Commission. For over five decades dual hats of law enforcer and public relations officer have fit him well—so well that even the violators respect him.

Since January 1947, almost daily without fail, Long has made his rounds of Lehigh County waterways. Amid a marriage, a 47-year printer's career, and the birth of two sons and two grandchildren, there always was time to patrol.

Why for so long? With so little compensation?

"I just like it," said Long, who turns 75 this July. "Being outside every day, talking to fishermen, I just like it all.

"I see all walks of life...the good and the not-so-good. Like the one day I came home and my wife said, 'My goodness, you look terrible.' And I said, 'That's the nicest thing anyone has said to me all day.'"

From his scrapbook of memories of 50 years patrolling Lehigh County, the Allentown resident produces one of many cita-

tions. Its title—the "Golden Hammer Award," for leading Lehigh County deputies in violations processed—is misleading. In the words of his issuing supervisor, one quickly learns what Stanley R. Long is all about:

"The hammer is made of brass but the hard metal should be covered with felt since his approach always has been kind, reasonable and personable, yet firm, in dealing with violators," wrote Lehigh County Waterways Conservation Officer Fred Mussel.

"Stan always leaves the violator, while not quite happy about the situation, at least not mad at anyone, and with a good

impression of our officers and the Commission."

But you don't need a citation to tell you that. Spend a day with him and you see it as Long goes out of his way to meet and greet, as he says, "all walks of life." Then you get to know friends who share his love of the water and fishing. People like:

● **Man Seog Jang** of North Wales, a carp fishing regular on the Lehigh River who routinely stakes out a point at Kimmets Lock. Trying to save the deputy a muddy trip across sodden flats, he begins flashing his fishing license as soon as the deputy gets out of his car.

● **Jerome Harris**, a familiar face on the special regulations stretch of the Little Lehigh. Harris is an Ambler resident and a skilled fly fisherman. Working his bead-headed nymph, he rolls one hefty trout and lands another while Long and a companion watch. He tells the companion: "I come up here just about every weekend, and I usually always see him. The man's an institution on this stream."

● **Dan Kelley**, who came from his Macungie home with young sons Ian and Sean in tow to feed the trout in the hatchery alongside the Little Lehigh. "We come here often," Kelley tells Long. "I'm originally from New York and it's great to have a place like this to bring the kids."

There are, of course, others Long does not care to meet. But he does, almost daily. In his patrol sector—where a city teems, a major river flows, and at least seven streams harbor trout—violations, and excuses, are unending.

"You never hear the end," Long said. "There is never an end to the excuses and the stories, always something new."

For instance: Those who say they didn't think they needed a license because they were fishing from a boat, or for "catfish or sunfish."

"And then there was a man fishing without a license who told me he wanted to try fishing first before he bought a license to make sure he liked it."

In 1995, Long, one of four deputies working under Mussel, issued 148 citations for fishing and boating infractions. The



Stan Long has been a DWCO for more than 50 years—longer than any other deputy.

Stanley R. Long: 50 Years a Deputy

most common offense: Violation of size or possession limits.

"With some people, it all goes home in the pot," the deputy said. "The smallest bass I ever confiscated off a guy was three and one-half inches long. He also had a 14-inch pickerel and a musky that didn't stretch across the bucket's bottom."

Chronic offenders know the man in green, he knows them, and, he adds, "they are getting educated, quite educated."

"They know my car and I can go out without my uniform and they know me. I'll pull up and you can see them passing the word that I'm here."

"I came across one fellow in the special regulations area who was fishing a fly, but he was catching too many fish," Long recalled. "I came up behind him and when he brought his line in I saw he had a mealyworm on his barbless hook."

"He said, 'That wasn't on there when I threw it in.'"

Free with a hearty laugh, Long often can count on even the daily violator for comic relief, like that found on the banks of the Lehigh River, at a fish ladder encased in eight-foot fencing, barbed wire and a string of "No Trespassing-No Fishing" signs.

"He had two fishing rods when he came out, wanting to know, 'Why can't I fish here?' When I explained, he said, 'That's it! I'll quit fishing!' He took both rods, slammed them across his knee...and they wouldn't break. They only bent."

"I went back to my car and had a little chuckle. When I went back, he was gone. I saw him there later fishing again."

Looking back a road traveled for over 50 years, Long sees waters that are cleaner, fishing areas that are dirtier. "Litter is much worse. You find fishermen's gobs of monofilament, fishhook wrappers and plastic bait containers everywhere."

On the bright side, more anglers—"both trout and bass fishermen"—are embracing catch and release, and "compared to 10 years ago, there is a lot more family fishing than there used to be."

Long's strongest appreciation of change



comes with the uniform he wears. Of the 296 men and seven women serving as Deputy Waterways Conservation Officers across the state, Long has served the longest. And he is the oldest.

"When I started, there were no uniforms or anything. You just carried a pencil, piece of paper and a little round badge that said 'special warden.' For an infraction, you took the information and passed it on to your district officer for prosecution."

Long witnessed the start of the Field Acknowledgement system, allowing violators to settle penalties on the spot, as well as intensive training in hazardous waste spills, first aid, marksmanship and many others areas.

Some things haven't changed. The gasoline bills for patrol are paid almost daily out of Long's own pocket. The family car is rapidly racking up the miles. Daily patrols still keep him from home four to eight hours or more.

And, still, Long's wife of 50 years, Mary, remains supportive.

"I knew when I married him that he

enjoyed his fishing and I could never take it away from him," Mrs. Long said. "If he did not have this, I don't know what he'd do—he'd drive me up a wall. Stan is so active and for him to sit around, forget it."

In January 1997 Long marked 50 years of serving the Fish and Boat Commission; in February he and his wife marked 50 years of serving each other. Perhaps both observances are linked by a shared thread of gold.

For his unparalleled dedication, Long early this year was honored by the Fish and Boat Commission as "Deputy of the Year for the Southeast Region" (see page 13). The recommendation came from Fred Mussel, the fifth WCO under which Long has worked.

"It's hard to pick out one outstanding characteristic with Stanley," Mussel said. "He is completely honest, dedicated and dependable. In his 27 years working with me, he has never said he can't make it or be there."

"He never, ever turned me down when I needed him to do something. That's dependability."

That's also a pretty good definition of a friend. And for over 50 years, the Fish and Boat Commission has had one of the best.



If you come to the waters to enjoy and appreciate, you'll see in DWCO Long the caring grandparent that he is.

Commission Approves Boating Grant

The Fish and Boat Commission has approved a five-year, \$125,000 grant to the U.S. Coast Guard Auxiliary to promote boating safety. The Commission approved the grant of \$25,000 annually through fiscal year 2001-2002 at its recent quarterly Commission meeting in Mechanicsburg.

The Coast Guard Auxiliary is an all-volunteer group that teaches boating safety courses and conducts public boat inspections. The Courtesy Marine Examination program is a statewide effort resulting in the annual inspection of thousands of boats. The exams are offered free of charge and provide boat operators with a comprehensive safety check.

At the request of the Commission to the Coast Guard, the Auxiliary cruises inland waters and assists with regattas, aids to navigation monitoring and towing.

The Auxiliary also offers a toll-free number (1-800-AUX-USCG) through which interested boaters can learn of the availability of local safe boating courses, including those offered by the Fish and Boat Commission.

Among other items approved by the Commission were:

- The addition of Lake Somerset, Somerset County, to the Big Bass Program.

- Removal of Leaser Lake, Lehigh County, as a Warmwater/Coolwater Species Special Conservation Water and adding it to the Select Stocked Trout Water program. Also designated as Select Trout Stocked Lake Program waters were Bradford Reservoir #3, McKean County, and Lackawanna Lake, Lackawanna County.

- Removal of the 1.1-mile section of Fishing Creek, Columbia County, from the Catch-and-Release program because of chronic water quality problems.

- Designation of a 250-yard section of Pine Creek in Valley View as a children's use area.

- Miscellaneous special regulations on Lake Erie tributaries for steelhead.

- Adoption of regulations defining unsafe boating practices and requiring that a person 12 to 15 years of age operating a personal watercraft first obtain a Boating Safety Certificate and that no passengers under the age of 18 be on board.

- Prohibitions on inflatable personal

flotation devices for sailboarders, waterskiers, and personal watercraft operators.

- Removal of sailboat restrictions on Commission-owned lakes.

- Acquisition of a one-acre parcel of land from the Northcentral Pennsylvania Conservancy to be developed into a site suitable for fishing by persons with disabilities.

- Disposition of a 0.2-acre parcel of land near Glade Run Lake in Butler County to facilitate culvert repair work and the authorization for disposal of property near East Bangor Lake in Northampton County.

- Adoption of regulations implementing boat titling legislation.

- Clarification of language in several existing regulations pertaining to the Select Harvest and Trophy Trout programs, presiding officer reports, effective date of filing licenses, disturbances of waterways, authorized devices for the taking of fish, and Big Bass designation on the Susquehanna River.

The Commission approved several items for proposed rulemaking. All items will be advertised and public comment will be sought before any action on final adoption. Items approved for notice of proposed rulemaking included:

- A minimum size limit of 40 inches to be established with a one fish daily creel limit on Lake Erie muskellunge; a three trout daily creel limit with only one trout exceeding 18 inches for Harveys Lake, Luzerne County; a prohibition on catching or killing river herring in the Susquehanna River; a six-inch minimum/eight-inch maximum size limit on American eels along with a prohibition on their commercial sale; changes to the waterskier observation requirements for permitted operators; control of dogs on Commission properties; boat registration requirements for Commission access areas on the upper Delaware River bordering New York and changes for commercial trap netting regulations on Lake Erie.

The complete Commission agenda is available on the agency's World Wide Web site. From the Commission Homepage (<http://www.state.pa.us/Fish>) proceed to the "What's Hot" area and select the May 1997 agenda for full text on all agenda items. —Dan Tredinnick.

Keir Appointed to Pennsylvania Fish and Boat Commission

Ted Keir, 72, of Athens, has been appointed by Governor Tom Ridge to serve on the Pennsylvania Fish and Boat Commission. Keir is retired from teaching with 33 years in the public schools of Bradford County in the fields of environmental science, conservation, biology and earth science, grades 9 through 12. He has been an outdoor writer for over 20 years with regular columns in several newspapers with emphasis on fishing, hunting, outdoor recreation and environmental issues. He has been a director and vice-chairman of the Bradford County Conservation District for nearly 20 years.



Keir, an avid angler, is a member of the Pennsylvania Outdoor Writers Association; Trout Unlimited; Bass Anglers Sportsmens Society; Nature Conservancy; National Rifle Association; National, State and local Wild Turkey Federation; Society for Pennsylvania Archaeology; and the Che-Hanna Rock and Mineral Club. He is an Honorary Life Member of the Sayre Sportsmen's Club, the Waverly (NY)/Tioga County Sportsmen's Club and the Susquehanna Valley Audubon Society. He holds a B.S. degree from East Stroudsburg University and a M.S. degree from Ithaca College. He has done more graduate work at Cornell University, Temple and Penn State.

Keir will represent Tioga, Bradford, Lycoming, Sullivan, Union, Northumberland, Columbia and Snyder counties.

He replaces long-time Commissioner J. Wayne Yorks of Benton, whose term expired. —Dan Tredinnick.

Anglers Currents



The Fish & Boat Commission's Coolwater/Warmwater Series of prints and patches continues with the limited-edition 1997 largemouth bass print and patch. These items are not available directly from the Commission. For complete details, contact the publisher, Wilderness Editions, RD 1, Box 73, Warriors Mark, PA 16877; phone: (814) 632-7645; for ordering, 800-355-7645.



Fishin' from the Kitchen

Steam-Broiled Bass with Brown-Sugar Sauce and Pineapple by Richard Combs



photo-Roger Mallon

Many people think that broiling gives fish a flavor unmatched by any other cooking method. Broiling fish is tricky, though, even for the best cooks. No one wants under-cooked fish, but broil fish a minute too long and it becomes dry and flavorless. Here is a quick, easy recipe that combines broiling, to give superior flavor, with steaming, to keep the fish moist.

- 1 to 2 pounds bass fillets
- 6 to 8 pineapple slices
- 1/2-cup brown sugar
- 3 tablespoons pineapple juice
- 3 tablespoons lemon juice
- 1 teaspoon mustard
- 2 tablespoons margarine or butter

Combine all items but the fish and pineapple slices in a saucepan. Bring to

a boil. Then reduce the heat and simmer for a minute or two, stirring continuously to blend the ingredients.

Preheat the broiler, and at the same time boil water on the stove. Remove the rack from the broiler pan and place the fillets on it (in one layer) with the pineapple slices around them. Carefully pour or spread some of the brown sugar sauce over the fillets and pineapple. Pour boiling water into the broiler pan, put the broiler rack with the fish back on the pan, and broil at 550 degrees, a few inches from the broiler, until the fish flakes easily with a fork, usually 5 to 10 minutes. Baste with brown sugar sauce about halfway through broiling. If the sauce browns before the fish is done, turn off the broiler and the fish will cook in steam from the water in the broiler pan. This recipe serves four to six people.

New Faces in the Field

You may notice some new faces in the field when you are out and about this year. Or you may see some old faces in new places. The following Fish and Boat Commission Waterways Conservation Officers are now assigned to new districts.

Walter A. Buckman
from Northeast Region to Cameron Co.
Terence C. Deibler
from Southcentral Region to Delaware Co.
Leo E. George
from W. Philadelphia to N. Wallenpaupack
Terrance L. Kane
from Delaware Co. to Lebanon/S. Dauphin Co.
William E. Martin
from Lebanon/S. Dauphin Co. to Warren Co.
John J. Pedrick
from Southeast Region to W. Philadelphia
Thomas Qualters, Jr.
from N. Wayne Co. to Bedford/W. Fulton Co.
Erik P. Shellgren
from Northwest Region to Greene Co.
John Triol, Jr.
from North Wallenpaupack to N. Wayne Co.
James M. Vatter
from Greene Co. to Westmoreland Co.



photo-Roger Mallon

Commission President Donald N. Lacy (right) presents a Wilderness Editions smallmouth bass print to members of the Berks Bassmasters for their habitat improvement work on Blue Marsh Lake, which the club performed last April. With Commissioner Lacy are (left to right) Cleon Carl, Sr., club president; Dave Yost, club secretary; WCO John V. Sabaitis; and Phil Haupt, club treasurer. Watch for a feature on this club and its work at Blue Marsh Lake in the November/December PA&B.

Wrong-Way Shad Show Up at Smithfield

Examination of otoliths (ear bones) from 72 adult American shad collected from the Smithfield Beach, Monroe County, PA, portion of the Delaware River by the PA Fish and Boat Commission in May 1996 revealed that three of the shad were fish that had been stocked as fry in the Lehigh River. These fish either "missed" the turn into the Lehigh River as they ascended the Delaware, or they were frustrated in their attempts to locate or enter the Easton Dam fishway. In either case, their abundance

(4 percent) in the Smithfield sample suggested that 1) fry stocked in the Lehigh River were surviving to return as adults in much greater quantity than expected, or 2) that the Delaware River shad population is not as robust as was previously thought. Usually, 400 shad fry are stocked to produce one returning adult.

This year, Fish and Boat Commission biologists will further investigate the proportion of Lehigh River shad comprising the Delaware River "run." If any Lehigh River

fish are present in the Delaware samples, their otoliths will be identifiable microscopically by glowing daily growth rings. Biologists bathe shad fry in a tetracycline solution, which marks the otolith, or ear stone. Results will provide insight into the Easton Fishway's efficiency in attracting and passing Lehigh River-origin adult shad and may provide additional information on the size of the Delaware River's shad population.—Area 6 Fisheries Manager Mike Kaufmann.



The mission of the Pennsylvania Fish & Boat Commission is to provide fishing and boating opportunities through the protection and management of aquatic resources.

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Dennis T. Guise,

Deputy Executive Director/Chief Counsel

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Joseph A. Greene, *Legislative Liaison*

Rafael Perez-Bravo, *Personnel*

Tom Ford, *Resources Planning Coordinator*

Dan Tredinnick, *Press Secretary*

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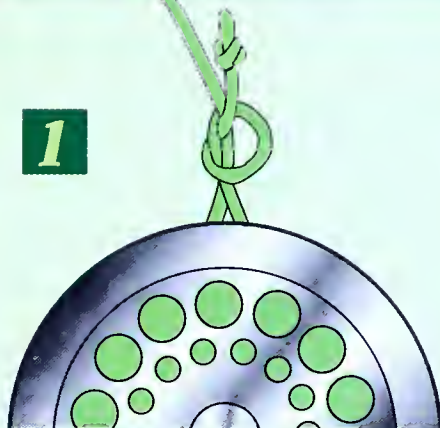
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PFBC World Wide Web Site:

<http://www.state.pa.us/Fish>

Angler's Notebook by Seth Cassell

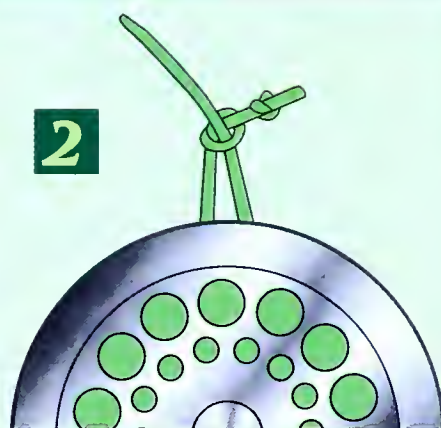


The arbor knot is excellent for putting backing on a reel spool. First, loop the line around the reel spool and make an overhand knot in the tag end. Next, tie the tag end around the standing part and make another overhand knot. This knot isn't meant to be snugged down. Tighten the second overhand knot a little, and draw the line down over the spool. The arbor knot should let you begin winding line around the reel spool.

Some big river smallmouths can be caught after the sun sets, especially during late summer. Tie on a mouse or frog imitation and work it along the banks. Also, try working it across slow-moving flats near fast water.

When fishing for trout during the summer, be sure to clip off closely the tag end of the monofilament, especially when dead-drifting flies or bait. Low and clear conditions this time of year make trout ultra-skittish, so anything that makes a lure, fly or bait look realistic increases the odds of a catch.

During the summer, look for river wall-eyes near the bottom in areas of moderate flow. Deep holes, outside bends, channels and tailwater areas are also likely places to find these picky feeders. Try vertical jigging or run a crankbait past their location.



When choosing the length of a fly rod, remember these ideas: Long rods, over 8 1/2 feet, make line control much easier. Plus, they are nicer to cast. Short rods, in the 6- to 7-foot range, are lighter and allow more clearance in crowded areas, such as mountain brook trout streams. However, the shorter length makes casting and setting the hook more difficult. Anglers should consider the situations and conditions in which they plan on using it. After all, it doesn't matter how easily a rod handles line if it is too long to cast in the stream you're fishing!

Because of wind, fly-fishing in open lakes and rivers can be difficult. Anglers can put more backbone into a cast by using one line size higher than what their rod is rated for. For instance, if you have a 6-weight rod, try matching it with 7-weight line. This gives you a little more power to fight the wind without putting a dent in your pocket.

Everyone knows that catfish feed by their noses. When using live or dead minnows, clip a portion of the bait to increase its natural odor. In addition to adding scent, it causes live bait to move erratically, which can also be attractive to other gamefish.

Illustration: Ted Walke

The DO-EVERYTHING ICE CHEST

by Bob Stearns



A portable ice chest offers a lot more than just a place to keep food and drink cold. It is also a good facility for refrigerated or frozen bait. And no imagination is required to realize that it can also be used as a fishbox for your edible catch. Or drop in an aeration system to keep live bait lively. Ice chests are also routinely used as seats, as well as occasionally a platform on which to stand for better visibility. Others use the smaller variety as tackle boxes or stowage for gear that should stay dry, like camera equipment and clothing, and as well-protected (as much as possible) from the summer's heat.

And there is at least one case on record where a very large ice chest was used as an emergency life raft when a fishing boat sank many miles from shore. Two adults managed to huddle inside—the box awash—for more than 12 hours until rescue arrived.

By far the most popular ice chests are foam-filled injection-molded plastic, usually ABS or some other similar material. The foam is semi-rigid. Both the inner and outer plastic “skins” are only 0.10-inch in thickness or less—mostly less. A few are foam-filled with skins of steel, definitely more resistant to impact and rough usage than plastic, but still less popular because they both cost a lot more and also rust eventually.

Then there are the real cheapies, just molded styrofoam with no inner or outer skin of any type. They serve temporary duty reasonably well unless stepped on or dropped. But they also just aren't substantial enough to be modified in any way.

Foam-and-plastic ice chests unfortunately have two major weaknesses: The top and the bottom. Some are a little better built and possibly somewhat more durable than others. The best designs for fishing purposes should have overlapping lids that keep rain and splashwater out. Many have such lids, but a lot of them do not. If you want some sort of weather-tight integrity for dry stowage purposes, take a close look at the lid fit before you buy.



A portable ice chest in your boat is convenient and versatile.

It's inevitable in small boats that all ice chests are also used as seats. For this reason the lid eventually becomes unpleasantly spongy when you sit on it, just a short step away from turning to complete mush. It is possible, by the way, in most cases to order a replacement lid for less than half the typical cost of the entire cooler (unless you find it at a really low sale price). Some dealers will order a new lid for you, or you might have to contact the company directly.

Actually, when it comes to foam/plastic coolers, an ounce of prevention is far less expensive than a pound of cure. It is very easy to protect the lid from the destructive forces of being sat or stepped on. It takes a simple do-it-yourself project that requires only a short Saturday afternoon when it's too windy or rainy to go fishing,

anyway, or when the fish just aren't cooperative.

All you need is a piece of plywood, four flathead stainless steel bolts with washers and nuts, some flexible adhesive, and paint. The total cost is under \$25 if you buy wisely. The results: A lid with significantly reinforced rigidity and greatly improved insulation that will last for many, many years. That's also a real boon for two-day and three-day camping trips! I have a cooler thus modified that I've used often for over 15 years now, and it shows absolutely no signs of weakening. The lid is as solid as a rock.

The plywood should be half-inch exterior grade. You can cut it to fit yourself if you wish, but most lumber yards and building supply stores will make up to two cuts for free if you buy the wood there. Round off the corners with a sander to conform to the cooler's lid shape to get that customized look.

The plywood should be cut to fit the top of the lid without overhang. The four stainless steel bolts must be long enough to reach down through the plywood and the thickness of the cooler lid, with enough thread exposed to accommodate a nut and washer. Countersink the bolt heads so they are flush with the plywood. One in each corner is all you need. Use the large-

est fender washers available to keep the nuts from gouging holes in the plastic lid.

Before you bolt the plywood top in place, you must use a flexible adhesive to bond it to the lid. Both silicone sealer and 3M Company 5200 adhesive will work, but epoxy gets too hard. The 5200 is definitely stronger and more durable. Use a generous amount between the plywood and the cooler lid, and also to seal the nut and washer on the underside of the lid. Then apply a bead around the edge of the plywood for final sealing, and make sure you apply this seal after the last coat of paint is completely dry.

If you want a non-skid surface on the plywood, one way is first to paint it with a durable enamel. Then apply strips of rubberized non-skid—the self-adhesive type—to the lid.

But there's a better way in the long run. These strips eventually begin to lift and peel. I prefer a rubberized non-skid paint called Skid-No-More. It comes in a basic gray, but if you don't like that color, once the last coat is dry you can paint over it with any exterior latex house paint. The non-skid elements in this paint, instead of a hard grit, are tiny particles of rubber. Obviously, this is much easier on the seat of your pants if you use the chest for sitting. If properly applied it will last for many years. It's made by Fibre Glass-Evercoat Co., Inc. (6600 Cornell Rd., Cincinnati, OH 45242. Telephone 513-489-7600).

To apply the non-skid, first seal the plywood with a paint sealer. Make sure the edges are especially well-sealed. Then apply two or three coats of the non-skid.

Protecting the bottom of the ice chest is also a very simple project. Just add three transverse wood "runners," 1-inch x 2-inch lumber each. One under each end and one in the middle, using stainless steel machine screws and the same adhesive you used for the lid. Seal the wood with a good exterior grade sealer and then cover each with exterior carpet—the thin "felt" type is best. It's commonly used in small-boat interiors, and it will help reduce the ice chest's typical tendency to slide around.

I also strongly recommend that you cover the protruding threads, nuts and washers inside the bottom of the chest with liberal gobs of 5200 or silicone sealant to keep water from seeping down into the foam.

You can even anchor the ice chest with bungee if you want to prevent it from moving at all in choppy water. You'll need two eye straps secured to the deck, one for each end. Use half-inch bungee and stainless steel hooks.

Using a small ice chest as stowage for tackle or other items doesn't require a reinforced lid unless it is also to be used for sitting purposes. To keep it from sliding around on the deck, however, you'll need to add some sort of non-skid material. Strips of thin outside carpet are excellent, as is the rubberized non-skid self-adhesive tape that is carried in large rolls of varying widths at most marine hardware stores. Small loose items inside the cooler can be stowed in plastic boxes with built-in dividers, the type sold by many fishing tackle stores.



What **NOT** to Put in Your ICE CHEST

● **Alcoholic beverages.** Booze and boating don't mix. Drinking alcohol increases your chances of having an accident. Alcohol affects your balance, coordination and judgment. Use of alcohol may also result in increased risk-taking on your part. It is illegal to operate a watercraft on all waterways of the Commonwealth while under the influence of alcohol or a controlled substance. Penalties include fines up to \$5,000, 90 days imprisonment, or both. A blood alcohol content of 0.10 percent or more is considered to be over the legal limit.

● **Life jackets.** Life jackets float—you don't! The purpose of a life preserver is to hold your head above water so you can breathe. The best way it can do this is for you to wear it. The decision not to wear a personal flotation device may be the last, and worst decision you ever make. The law requires that wearable life vests must be readily accessible, not hidden away. So don't hide it—wear it. It could save your life.



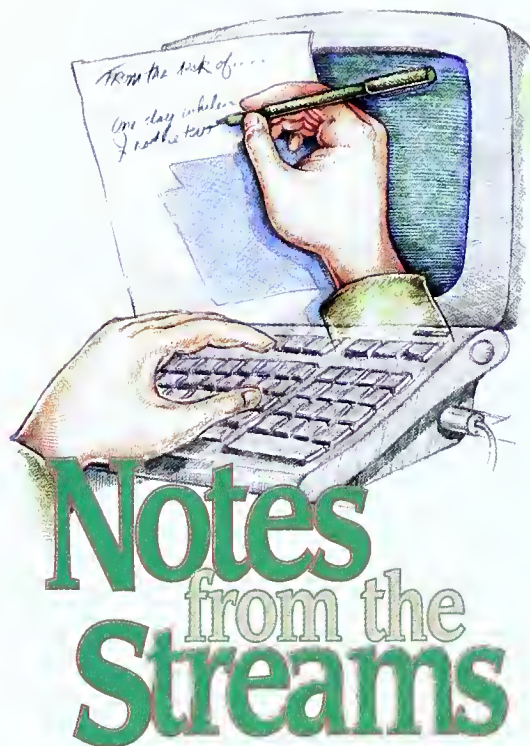
Photo: Art Michaels

● **Fire extinguishers.** Never put your fire extinguishers in any compartment. They must be mounted in a location where they can be quickly used in an emergency—away from the fuel source. Fire extinguishers are required on all motorboats with closed compartments, permanently installed fuel tanks, double bottoms not sealed to the hull or completely filled with flotation materials, and with closed living spaces. They must be fully charged, Coast Guard approved, and in good condition.

● **Extra fuel.** Keep your extra fuel tanks out in the open where gasoline fumes can dissipate. It's never a good idea to keep explosive liquids like gasoline confined in a compartment that is not vented. Also, it is illegal to do so unless you have the appropriate legal number of fire extinguishers onboard.—Dan Martin.



Photo: Bob Stearns



Sorry...go back to sleep

While deer hunting last year, I arrived at my favorite hunting spot near Leaser Lake about 4:15 a.m. I had just settled into my blind when another vehicle came up the gravel road and parked near my own. I waited to hear the sound of footsteps in the leaves, or see the beam of a flashlight cutting through the dark of the forest. To my surprise, I saw and heard nothing.

About three hours later I finished hunting and as I left the woods, I walked near the vehicle I had heard earlier. I was very concerned when I saw a man slumped over the wheel inside the car with all his hunting equipment on the seat next to him. Had he choked or had a heart attack? I felt guilty for not checking earlier when he did not get out of his car. When I opened his door to assist him, he snapped his head up and gave me a startled look. I asked if he was OK. He said, "I'm fine. Why?" I told him that I had heard him arrive to go hunting, but had not seen or heard him get out of his car. He told me that he didn't get out of his car because he was not really hunting. He only came out to get away from his wife and be able to sleep late without her waking him and making him cut the grass. —WCO Thomas Benevento, southern Chester County.

Snapper in the soup

While performing a survey for endangered turtles, we discovered a medium-sized snapping turtle submerged under several inches of water and soupy mud. Fisheries biologist aid Lance McDowell, who was being trained in the "fine art" of turtle searching, was shown the area and told that a turtle was there. Because he wanted some practice and because he is a rugged indi-

vidual, he bravely plunged his hand into the mud to grab the unseen turtle. Unfortunately, we had forgotten to explain the first rule of snapping turtles to him. That is, when probing in the mud for turtles, you need to quickly orient your hands along the shell using the ridges and edges. The ridges point to the rear, so unwanted bites can be avoided by grabbing the hind legs or rear of the shell instead of the head. To say that Lance has good reflexes is an



understatement. Even though he escaped injury, it is doubtful he'll ever fully trust anyone in the Nongame Unit again. —Andrew L. Shields, Chief, Nongame and Endangered Species Unit.

20/20 vision?

Recently, a fellow officer and I were patrolling Lake Wallenpaupack. I had just cited an individual for towing a water skier after sunset when my partner said he noticed a small sailboat operating without navigation lights across the lake. We proceeded to the opposite side of the lake, moving slowing toward the apparent vessel. The officer picked up his binoculars and said, "I can see them real well through the binoculars." We moved slightly closer and turned on our spotlight, only to find the "sailboat" was actually a large rock with a birch tree behind it. To say the least, my partner's vision was questioned the entire weekend. —WCO Walter Buckman, Northeast Law Enforcement Region.

There are ships, and then there are SHIPS!

Last spring I had the pleasure of electrofishing the lower Delaware River and Estuary with John Soldo and Rob Wnuk, Fisheries Biologist and Technician from the Area 6 office. Our mission was to assess spawning striped bass abundance at annual sampling sites as part of Pennsylvania's commitment in the Atlantic States Marine Fisheries Commission Striped Bass Management Plan. We were also to tag strip-

ers to track their movements and assess their role in recreational and commercial angler catches along the East Coast.

The lower Delaware is an important waterway for commercial ships carrying a wide variety of cargo to destinations worldwide. Tugboats, barges, tankers and container ships are common and require an alert operator as we "fished" along bulkheads, piers and gravel beaches. Seeing the battleships *Iowa* and *Wisconsin* berthed at the Philadelphia Navy Yard was enough to make my day (even without the 20- and 30-pound striped bass). Can you imagine being alongside a battleship that has guns longer than our "puny" 20-foot boat? —Richard A. Snyder, Chief, Fisheries Management Division.

Sinking badge

While patrolling the Schuylkill River, DWCO Frances Lauderback and I observed three people paddling a canoe upriver. All three occupants had PFDs, but they were obviously unfamiliar with the operation of their boat and were moving around inside it. As we watched, the canoe overturned and the occupants were suddenly swimming. I maneuvered our patrol boat to them and DWCO Lauderback and I assisted them in righting the canoe and bailing the water. While I was leaning out over the bow of the patrol boat holding the canoe steady so they could get back in, the tip of my badge caught the rail, and the badge came off my shirt and sank in 12 feet of water. There are two morals to this story: Be familiar with your boat before you go out, and officers, keep your equipment secure! —WCO Robert Croll, Southeast Law Enforcement Region.

Somerset County Youth Field Day

The Somerset County Sportsmen's League held its 4th Annual Youth Field Day last year at the Turkeyfoot Fish and Game Club. Once again, the event went very well and more than 70 young people between the ages of 10 and 16 participated. These young people had the opportunity to catch trout, canoe, trap shoot, archery shoot, learn about wildlife, and do other meaningful outdoor activities. I would like to thank all of the people who worked to make the day such a great success.

Several Somerset County cooperative nurseries provided trout for the event. I had the pleasure of assisting the youth with



trout fishing. Several of the young people who caught trout told me they had never fished before. One father who was there with two sons told me that he was definitely going to purchase a license and take his sons fishing.

I would like to issue a challenge to all Commission employees and volunteers for the rest of 1997. Let's try to assist with at least one Youth Field Day event in our areas. It will be a great worthwhile experience for everyone. —*Commissioner Donald K. Anderson.*

No lights on because...

These are the top five reasons given last summer for not displaying the proper lights on motorboats between sunset and sunrise on the Lake Frederic pool of the Susquehanna River.

5. The dog jumped on the stern light and pulled the wires out going to the lights.



4. I've been boating down here for 40 years with white lights on both ends of the boat. When did you guys come up with this rule requiring a red and green light on the front of the boat?

3. I've been boating all my life and I'd never consider boating after dark without lights (inspection revealed no bulbs in lights, bulb sockets full of rust).

2. I didn't think you guys patrolled after midnight, so I figured I wouldn't get caught.

1. I was going so fast that when I turned into the channel the lights flew right off the boat!

But we haven't heard any "unusual" stories yet. —*WCO William E. Martin, southern Dauphin/Lebanon counties.*

Some things make it all worthwhile...

Most of my summer weekends are spent patrolling Lake Wallenpaupack in Wayne

and Pike counties. Recently, Officer Kaneski and I were patrolling the lake at about 10:00 p.m. We noticed a small fire on shore behind Cairns Island and decided to check it out. As we approached, the light of the fire revealed two individuals who were fishing. We went to shore and were greeted by two proud young anglers. They were Russian immigrants aged 14 and 15. They had just landed a large channel catfish weighing more than 10 pounds. We were able to talk with the young men for a few moments about life in Russia and America and their fishing experience at Lake Wallenpaupack. We even took their photograph holding the large channel cat and promised to send them a copy. It was a nice experience after a long day's work. —*WCO Walter A. Buckman, Northeast Regional Law Enforcement Office.*

A young fisherman's gift

Soon after I was assigned to my northern York County district just out of training school, I had the pleasure of participating in Manchester Township's "Youth Day." I provided fishing rods and helped children fish in the township's small, weed-covered pond. DWCO Chris Warehime assisted me because we were told to expect a large crowd. Unfortunately, it rained all morning, which severely limited the number of youthful anglers.

However, one young man named Justin who is nine years young, fished intently with corn as bait from the time we started until the event was over—some three hours—despite the rain and bone-chilling dampness. After it started raining heavily and everyone else went into the pavilion, Justin said calmly to me, "Hey, Mister, I think I have a fish on the line." I looked over at him only to see his rod bent almost in a circle. I thought he had hooked a bunch of weeds, but told him to reel his line in steadily. About five minutes later, I saw that the "weeds" were really a huge bass. Justin concentrated on the task at hand and never got excited, but I sure did! Finally, he landed the lunker. It was the biggest smallmouth bass I had ever seen—well over 23 inches with a girth that appeared to be almost as large. I bet it would have tipped the scales at more than four pounds.

After the two of us finished looking at each other in amazement, I asked him if he wanted to take the fish home. He looked at me pensively and said so maturely, "No,

I am going to release it for someone else to catch." I watched speechlessly as Justin gently helped the fish back into the water and resumed his fishing.

Despite the rain, dampness and low turnout, I will always remember that day fondly because Justin's thoughts and actions—those of a person many years his senior—really warmed my heart. "A fish you release is truly your gift to another angler." —*WCO George Geisler, northern York County.*

Rare "cat"ch

At midnight, last August 18, Freeport angler Doug Behrik reeled in the "cat"ch of his life—a rare albino catfish.

The 27-inch channel cat was caught on a live sucker below Lock and Dam 5 on the Allegheny River near Freeport.

Behrik, an avid catfisherman, has taken and released many catfish from the Allegheny. The largest he recalls was a 40-inch, 29-pound flathead caught just one week before the albino.

A friend convinced Behrik that this unusual fish was worthy of being mounted. It was taken live to a taxidermist where it was referred to as a pot-bellied albino. It's girth was 17 inches. In his haste to get the fish processed for mounting, he didn't get it weighed until after it was frozen.

The albino channel cat weighed 9 1/2 pounds frozen. That's just short of the minimum qualifying weight for the Fish and Boat Commission Angler Recognition Program, but certainly worthy of the recognition as something rare and unusual.

A reminder to anglers: You can report a rare or unusual catch by contacting your district WCO or the regional office nearest you listed in your summary booklet. —*Martha Mackey, seasonal WCO, Southwest Region.*

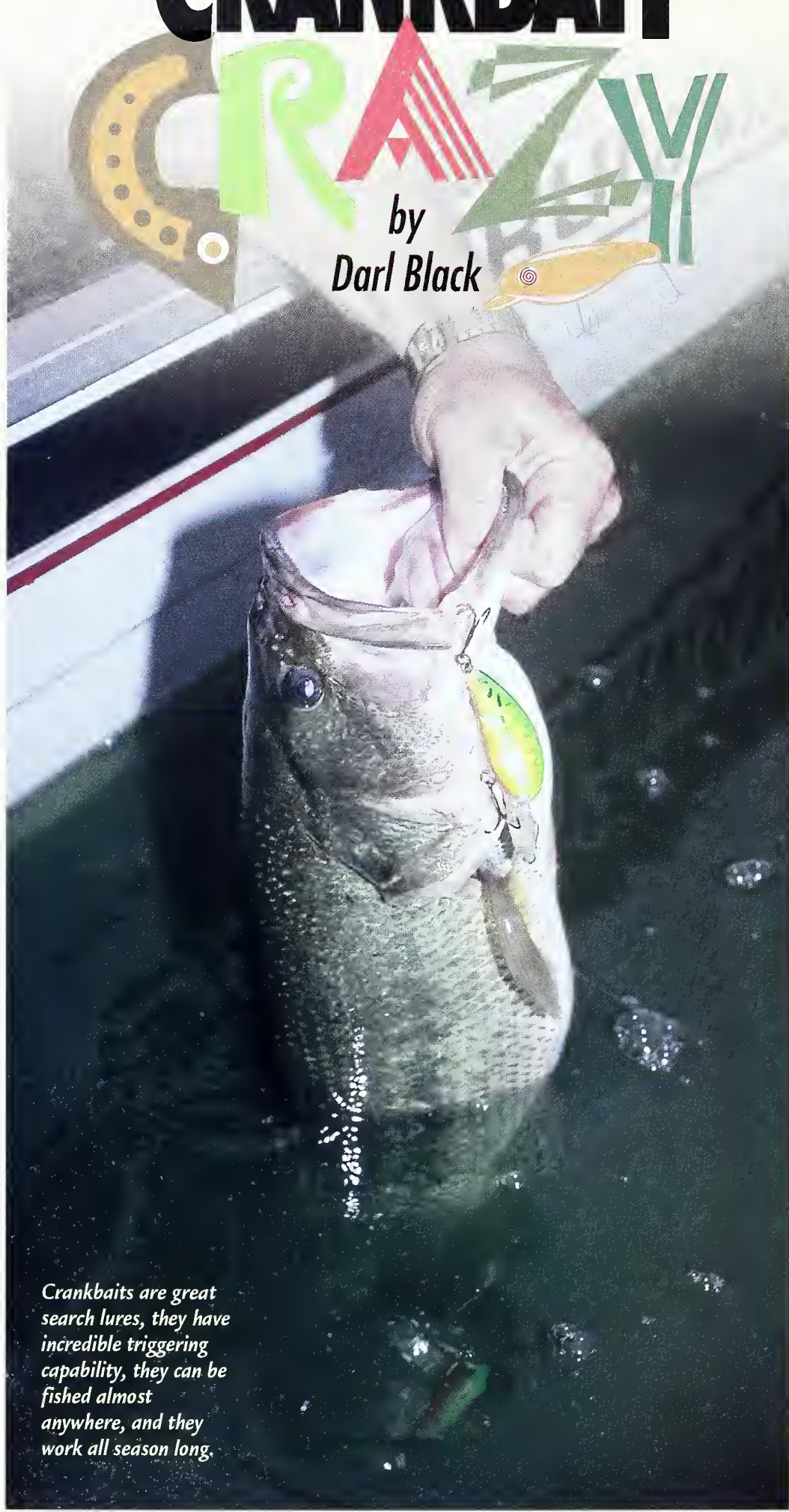


Doug Behrik with his 27-inch, 9 1/2-pound albino catfish.



CRANKBAIT

by
Darl Black



Crankbaits are great search lures, they have incredible triggering capability, they can be fished almost anywhere, and they work all season long.

Crankbaits: Difficult to fish, easily snagged, frequently thrown by fish, won't run straight, and expensive.

Crankbaits: Great search lures, incredible triggering capability, fished almost anywhere, useful all season, and yes, expensive.

Crankbaits: You either love them or you hate them. I love them now. But that was not always true.

About 18 years ago my opinion mirrored the initial statement. Then I began to receive an education from crankbait masters. Names of professional anglers like Rick Clunn, Paul Elias and Dave Fritz come to mind; their techniques certainly contributed to my education. But the individual who most influenced my use of this bait is lure designer Tom Seward. He understands both the art and science of crankbaiting.

I melded information from the experts with my own experience and added tips from local fishing cronies. Today I have great confidence in crankbaits.

To make it perfectly clear, I'm focusing on hardbaits approximately two to four inches long with a diving lip, which are cast and retrieved instead of trolled. I'm not referring to long minnow stickbaits or lipless rattle baits. Even though they're generally used when in quest of black bass, crankbaits are also effective for walleyes, white bass, stripers, northern pike and even muskies at certain times of the year. However, most of this information centers on largemouth and smallmouth bass.

Many anglers strive to learn nuances involved in lures like plastic worms, spinnerbaits, jigs or topwater baits. But when it comes to crankbaits, these same individuals merely want to cast and retrieve any old diver without much thought to the specifics. However, if you want to be successful with crankbaits, you must pay attention to details.

Because they are retrieved at a fairly steady pace compared to worms or jigs, crankbaits help you cover a lot of territory in short order. Perhaps because it appears to be fleeing, a crankbait can trigger strikes from bass that have turned their noses up at slower lures. But don't assume that bass always see a crankbait as a forage fish. Experienced anglers agree that crankbaits may be interpreted as baitfish or crayfish by bass, depending on the circumstances. A lure does not need to look exactly like a crayfish to be perceived as a crayfish by bass.

There is a lot to learn about crankbaits and cranking. While not covering everything, the following details can put you on

photo Darl Black



the road to becoming a genuine crankbait fisherman, instead of someone who simply throws one every now and then.

Crankbait dynamics

With brand-name crankbaits costing between \$4.00 and \$8.00 each, it pays to know what you are buying before plunking down the dough. No single crankbait is suitable for all situations. There are times a shallow runner may be needed; other times, an extremely deep diver. Or conditions may demand a lure that holds its position at rest instead of rising toward the surface. Sometimes a tight wiggle triggers a hit; other times, it may be a wide wobble. It's important to understand how aspects of body style, material and lip design affect the performance of a crankbait.

"Flat" and "fat" are the two basic styles in diving cranks. Well-known examples of these styles include Storm's ThinFin (flat) and Cordell's Big O (fat). Between the extremes are hundreds of different models, some which are hybrids of flat and fat.

Thin, flat-sided lures produce a tighter wiggle than rounded fat ones, so thin, flat-sided lures are more representative of swimming baitfish. However, the tight wiggle makes them difficult to feel when working. When retrieved, flat lures with small lips tend to swim horizontally. Many crankbaiters favor flat lures in cool water situations for relatively shallow water.

A round-body lure (that is, fat lure) has a wide rolling wobble. The vibrations can easily be felt through the line and rod. Fat lures are more likely to have lips designed for deep diving than flat lures. Crankbaits with long, straight lips dive deeper than ones with short, angled lips. Big-lip crankbaits swim in a nose-down position, affording better protection to treble hooks than hardbaits that swim in a horizontal position.

Wood lures are generally more buoyant than plastic lures, although weighting techniques by the manufacturer may override buoyancy differences between wood and plastic. All wood lures do not exhibit identical buoyancy. Balsa baits (like the Bagley series) are more buoyant than ce-

dar baits (like the Poe series). Wide variances occur in natural wood, resulting in unique action to individual baits. On the other hand, hard-plastic crankbaits produce more consistent action and depth because of computerized mold technology.

But often it's that little something different that makes a real fish-catching crankbait. A decade ago I had a Bagley DB3 that was one heck of a bass catcher. I finally lost it to a musky. But after trying

natural behavior that baitfish exhibit.

Actually, most crankbaits marketed as neutral-buoyant rise very, very slowly at rest. But, if you wish, they can easily be fine-tuned to stay put by adding Storm SuspenDots. Simply stick these adhesive-backed lead foil dots or strips to the belly of a near neutral-buoyant crank to make it a true suspender.

Many experienced crankbaiters are fond of suspenders in the cool water of early spring and fall. Once the bait has been cranked to its maximum depth, it can be worked slowly without rising far from cover or the bottom. I also prefer neutral buoyant baits during the summer when cranking deep, fairly "clean" structures.

Does that mean buoyant lures are old hat? Hardly. When working areas rich with wood cover, buoyant baits get the nod. As soon as a crank encounters a branch or stump, stop the retrieve to let the lure rise above the cover before starting to crank again. Luhr-Jensen's Brush Baby is the best example of a very buoyant bait intended for heavy wood cover in water shallower than 12 feet.

Depth factors

The trend recently is for deeper running lures, so manufacturers love to make claims about the depth at which their lures run. Two things to keep in mind: Deeper is not always better and manufacturers inevitably overstate the practical running depth of their lures.

As already mentioned, the depth a crankbait reaches depends on a number of factors that are built in by the manufacturer, including the size and angle of the diving lip, body material and body size. Anglers influence running depth by selecting line diameter, distance of cast, and speed of retrieve.

Line diameter is a significant factor in obtaining the maximum running depth of a crankbait. Tom Seward has conducted tests that show that a drop of .001 of an inch in line diameter produces an additional nine to 12 inches in lure depth. Generally, smaller line diameter equates with lighter pound-test. For example, dropping from 12-pound-test monofilament to 8-pound test may increase running depth by more than three feet.



four more DB3s in the exact same color, not one came close to producing bass and walleyes like my original one.

Buoyancy factor

To suspend, or not to suspend? That is a big question among crankbaiters today. Most crankbaits are designed to float at rest. A few crankbaits are designed to sink. Sinkers are rarely used by cast-and-retrieve bass anglers, probably because the bait cannot "rise" above a snag when worked on the bottom.

But there is a middle ground. Suspenders, also known as neutral-buoyant baits, are gaining popularity for specific situations. Suspending lures do not dive deeper than floating lures; they simply hold position when an angler stops cranking—a

CRANKBAIT



Some anglers are concerned that going to lighter line might increase the risk of losing a lure. But if you let fear of losing a crankbait be the determining factor for line-test, you might as well give up crankbaits. Actually, there are few waters in Pennsylvania where wood cover is so dense that heavy pound-test line really needs to be considered.

Usually 8- or 10-pound monofilament is recommended when maximum depth is desired. Much attention has been given to the new braided or thermofused (second-generation braided) lines that offer super-fine diameter coupled with high pound test. Having tested braided line, I do not recommend it for a number of reasons. However, I have not fished thermofused line, so I do not have an opinion on it. And don't overlook the reverse: To make a deep crank run shallower, use a thicker diameter line (that is, heavier pound test).

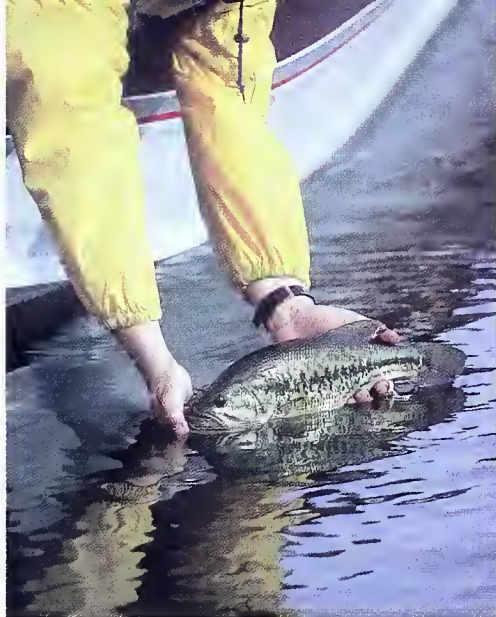
Perhaps most surprising to some anglers is how speed of retrieve affects running depth. The majority of crankbaits do not maintain maximum depth with a fast-pace retrieve; they actually lose depth at high speed. To run deep, initially turn the reel handle quickly to force the crankbait to dive following splashdown. Then step down the retrieve to a slow to moderate pace. If an extremely fast retrieve is desired, be sure to select a lure that is designed to track straight under a high-speed retrieve, such as the Speed Trap.

Attempting to make a crankbait touch bottom in 10 feet of water is impractical if it was designed to run only four feet deep. Therefore, it is necessary to carry different models that cover the complete range of depths from two feet to 20 feet. I carry separate crankbaits to cover the following depth ranges: 3 to 6 feet; 7 to 10 feet; 11 to 15 feet; 16 to 20 feet.

Retrieving crankbaits

The most effective crankbait retrieve is to have the lure bump, tick or tap something. Bumping and veering triggers strikes. Does that mean a free-swimming crank never catches fish? Not at all. Let me try to explain with a "zone" theory.

In shallow water (less than six feet), a bass will swim up to attack a free-swimming crankbait more readily than in deep



water. In water deeper than five or six feet, I believe a crankbait needs to be within two feet of the bottom to draw a strike from a bass. Unless you are occasionally tapping the bottom with the crankbait, you have no idea at what depth the lure is running.

There are always exceptions, but I play the percentages. However, the *bump, tick* or *tap* should not be translated as constantly plowing the bottom. Instead, equate working a deep-running crankbait to "walking." As you walk across the floor your feet alternately touch the floor, as opposed to shuffling your feet. Maybe skipping would be a better analogy than walking. That's the way a crankbait should work. Bump, swim, bump, swim, bump swim. You get the picture.

Over gravel, rock rubble, hard sand, clay or marl with the occasional low-cut stump, walking a diving bait poses minimal risk of snagging. But what about areas of manmade reservoirs where stumps, logs or brushpiles are more numerous? These areas have high potential for attracting bass, and should not be passed by for fear of losing a lure. Actually, a crankbait is the perfect lure for locating bottom obstructions that are likely to hold a bass. The key to preventing hang-ups goes back to that walking or skipping retrieve.

In many instances the lure's bill will deflect off the obstacle and continue on. If contact is more solid, stop cranking and let the lure rise a foot or so. Then begin retrieving once more until the next obstacle is encountered. Strikes frequently come as the lure veers off a stump, rises following contact, or when cranking is initiated following a pause.

A neutral-buoyant bait may have to be coaxed around an obstacle. In situations where stumps, brush and logs are numerous, always use an ultra-buoyant bait.

I do not fear losing crankbaits to wood. If I should snag wood, I know it can be worked loose. But old line in the water is

an entirely different ballgame. When anglers break off lengths of heavy line on a snag, that line settles to the bottom and acts as a gill net for lures. Submerged old line is the number one crankbait-eating culprit.

In deep water, always keep the rod tip pointed toward the water's surface. When casting to shallow water, it may be necessary to maintain a high rod position to prevent the crankbait from "plowing" the bottom. Then gradually lower the tip as the bait works deeper.

Other secrets

Crankbait season: Crankbaits can take bass any time the water temperature is above 42 degrees, assuming you experiment to find the appropriate bait and retrieve. However, for me the peak cranking period is from late June to the first part of November.

Crankbait hooks: Must be sharp! Round-bend short-shank trebles work best on most crankbaits. Personally, I do not like the new rotating trebles because they tend to tear the soft mouth tissue of bass. I always crimp hook barbs flat on all my crankbaits to make it easy to remove from the fish. The simple secret to landing fish on barbless hooks is to keep a tight line!

Crankbait colors: Don't get caught up in too many colors. I fish anywhere in the state with just three color schemes. First is a chartreuse side with blue or green back (or a fire tiger pattern), second is a shad pattern, and the third pick is a clear side with reflective insert.

Crankbait rattles: Internal rattles on a lipped diver are unnecessary as far as I am concerned. Swishing of the hooks on the hangers makes enough noise for a crankbait.

Tuning cranks: If the bait is running to one side, cautiously bend (not twist) the line tie in the opposite direction. Do this carefully with a pair of small pliers. Go easy—do not apply much pressure. Then test in the water before bending further.

Crankbait rods: One of the major reasons for losing bass on crankbaits is a rod that is too short and too stiff. Select a 6 1/2-foot to 7-foot medium-power rod with a forgiving moderate action. The exception may be for extremely deep crankbaits (those going over 15 feet) where a long, medium-heavy power rod is more practical than a softer crankbait rod.

Net: I always net crankbait-caught fish, but only with a rubber mesh net! The net saves both you and the fish from injuries that can occur if attempting a lip-grip or lift-and-swing landing. Treble hooks do not tangle in rubber mesh, making fish release quick and easy.

Are Our Fishing and Boating Regulations



Significant declines in license sales from 1991 through 1996 have garnered the attention of the Pennsylvania Fish and Boat Commission (PFBC). The reasons for these declines have been a topic of much discussion and they have given birth to a multi-faceted approach to stem the decline in sales and reverse the trend. This approach is based on a thorough understanding of the factors underlying the decline in license sales.

There are many factors that are influencing license sales and the current downward trend. Among the more significant factors found are the amount of leisure time available for people to fish and the cost. This article will analyze the contribution of another one of the factors often cited as a reason people do not fish—the complexity of Pennsylvania regulations.

National-level research, conducted by Responsive Management in 1995, showed that 86 percent of active anglers said that complex regulations did not take away from their enjoyment of their fishing experience. Eight percent of the nation's active anglers think that complex regulations took away from their enjoyment moderately and 5 percent said that the complexity of regulations strongly took away from their fishing enjoyment.

Research on Pennsylvania anglers shows similar results. A 1996 survey of Pennsylvania anglers and boaters delved into the issue of regulatory complexity and regulation communication. Eighty-four percent of registered boaters and 90 percent of resident anglers think that boating and fishing regulations are clear and easy to understand respectively. Only 9 percent of PA's resident anglers responded that they

thought PA's fishing regulations were not clear and easy to understand, and 14 percent of PA's registered boaters thought that PA's boating regulations were not clear and easy to understand.

When asked how well the Commission does in making people who fish and boat aware of current regulations, opinions were also positive. Sixty-three percent of resident anglers and 64 percent of registered boaters thought that the Commission does a good or excellent job of making people aware of current regulations.

Information from a Commission survey completed in 1995 also indicates that the complexity of regulations is not a primary reason why people do not fish. When PA citizens who have fished before, but not in the two-year period before the survey, were asked why they did not fish in the past two years, no respondents indicated that the complexity of the regulations kept them from fishing.

The top reasons cited by respondents for



not fishing in the past two years were lack of time (40 percent of respondents) and no interest or other hobbies (26 percent of respondents). These were followed by no exposure or support system (that is, no one to fish with), cited by 8 percent of respondents, and the cost of licenses and/or equipment, which was indicated by 6 percent of respondents.

The statistically valid information presented above shows that the opinion that Commission regulations are too complex and that they are having a substantial negative effect on fishing and boating participation is simply not valid. Some anglers and boaters certainly think that regulations are too complex and that we can do a better job informing them. However, in a statewide context, these opinions are neither pervasive nor a major contributing factor to the recent decline in license sales. If anything, anglers support more regulations where they will increase fishing opportunity.

The 1996 survey of anglers and boaters clearly shows that anglers support increased regulation where it will improve fishing. When asked if they support or oppose more strict size or creel limits where they have been shown to increase the number of fish or the number of large fish, 75 percent of resident anglers indicated support. More than half of the Commonwealth's resident anglers *strongly* support such regulations. A recent angler creel survey on Fishing Creek, Clinton County, showed that special-regulation areas are actually an attraction for anglers. Some 17.2 percent of anglers interviewed were non-residents, and 5.1 percent were from southwest Pennsylvania.

The complexity of fishing regulations may be a factor taking away from some anglers' experience, but based on valid statewide customer information, the complexity and communication of Commission regulations do not appear to be a significant problem. There is always room for improvement, and as such, the Commission is striving to consolidate regulations and improve the Commission's communication of regulations. For example, regulations based on fish size and not the type of tackle used is being piloted on Penns Creek and the Little Juniata River. With the recent format changes to the fishing regulations book, the Commission has started to improve how we communicate fishing regulations. In the future, the Commission hopes to make this publication even more user friendly for anglers.

Tom Ford is the Commission Resources Planning Coordinator.

MATCHING THE MOOD

by
Dave Wonderlich

It was a hot, dry August afternoon and getting close to supper before I took my first step into Fishing Creek. As I worked my way along the rocky ledges, a few anglers were dead-drifting nymphs in the lower flowing runs. I noticed a few flashes in the creek's chalky water. The trout seemed to be "working," but it didn't appear they were taking nymphs or dry flies, so I tied on what no respectable fly fisherman would do in low, late-summer water—a size 8 long-shank orange and red Woolly Bugger. The streamer splashed as it hit cross-stream and immediately began to sink. A quick retrieve kept the hook from getting hung up and provided flashy action in the murky water. I was fishing around the bend from the other anglers, so my weighted offering wouldn't ruin the quiet for others.

I was beginning to have the feeling my choice of flies may have been way off when I saw another flash like I had seen before. The Bugger hit well above the location and was almost racing at a 2 1/2-foot depth when the trout slammed into the fly. The fish hooked itself in its haste to grab the Bugger. The splashing seemed out of place in the quiet woods along the sleepy stream, but therein lies the lesson I received that day. I had become so ingrained with matching the hatch according to the naturals on or under the water, time of day, stream, time of year, water conditions, and so forth, that I had left the fish and its mood out of the equation. Things aren't always as they appear.

I'm sure we have all had the experience (possibly every few times we are on the water) that whatever we offer the fish does not produce strikes. Natural flies can be matched with perfection and used with superfine leaders with only a look from the fish. Spinners can flash their way past trout with no reaction, and worm refus-

als can have us wondering if we have the wrong size, wrong depth or wrong day. It doesn't matter if we are after trout, bass or anything else—more hookups can be had by matching the mood of the fish with our presentation each time we go fishing.

I bent down to let the barbless hook slip from the jaw of the dark, red-spotted brownie. It disappeared and I moved downstream a few yards. There were telltale flashes in the depths and I knew the fish were active, kind of rowdy active. Before that time I tended to think of the exact insect the trout must be feeding on and its stage of development. Now it was enough for me to know, from the trout's point of view, they wanted my Woolly Bugger. Why do I think they wanted that streamer?

Because it matched their sassy, flashing mood. Several casts later and another trout was on the Bugger. And so it went, the makings of an incredible evening.

A cold morning the following spring, shortly after trout season opened on stocked water, a fishing companion and I trudged past lines of fishermen to get away from the crowds. As we watched the anglers it was obvious the action was not hot. Typical early season tactics dictate larger offerings, more lead, and less need for a quiet approach. The water was lower than typical for spring and much clearer.

My friend slipped on a gold spinner that didn't seem any larger than about a size 18 fly. He got on his knees and made his way to a casting position still well away from the creek. The first cast landed under a small waterfall. When he began his retrieve, a boil under the lure doubled his rod. After some quick maneuvering and a fine job of handling his ultralight spinning outfit, he netted a very surprising 21-inch brown trout.

The mood of the trout that day in that stream was much the same as we would normally expect from summer trout. I don't believe it is what you give the fish as much as how they are given it, and that means matching the mood.

More than presentation

What I am suggesting is more than presentation. If you see fish bulging the surface and they won't take an emerging insect, it doesn't mean you have the wrong insect, or necessarily the wrong presentation for the fish. What it might mean is that the fish have worked themselves up to their feeding frenzy and it will take something faster, flashier and wilder to produce the strike as in the story at the beginning of the article. The second story illustrates just the opposite mood of the fish, and a slow, very subdued presentation matched the wants and mood of the fish.

One day at Fisherman's Paradise during a break in the fishing, we entered the hatchery and watched as a worker fed the trout. When the pellets were thrown to the surface of the water, the fish behaved like Piranhas, each rushing the food to ensure its own survival. The fish didn't all rush at one time, but when the feeding began it triggered the rest of the school until all the fish in the area were in a frenzy. Interestingly, during the frenzy they grabbed the pellets, bubbles and anything else that happened to blow onto the water. I don't think their behavior in stocked waters (or for native fish in wild waters) is much different when the mood is right.

Determining the mood

So how do you determine the mood of fish? You begin by observing the water. Stand well back from the water to be fished so your presence doesn't influence the outcome. What you are looking for is fish behavior. Do you see flashes (from the sides of fish reflecting light as they move), which usually mean a high level of activity. Do you see fish feeding on the surface, and are they subtle feeds or are they splashing swirls—also heightened levels of activity although the subtle surface feeds tend to show selectivity and a higher awareness of what the fish wants to eat.

The splashing swirls, especially when there are several fish acting this way, are parallel in activity to the flashes. This does not mean the activities of the fish are the same in the heightened activity levels—just that their abandon at striking a bait, lure or fly seems to be greater. The flashing fish in the first story was the reason for tying on the Bugger.

Inactivity is also worthwhile observing. A seemingly sleeping body of water without any noticeable activity should trigger careful experimentation to learn more. When things are very quiet, always begin quietly and away from where you believe the fish should be. Begin subtly and see if the fish are interested. Dead-drift bait or nymphs to see if the fish are waiting. If nothing is interested, observe some more and give the water a rest before attacking it with larger offerings and flashy retrieves. Through careful experimentation you will discover the mood of the fish.

My grandfather always seemed to know what the fish wanted from us whether it was on a stream or lake, for bass or trout. I was seven or eight at the time and he was magic. We used worms mainly, and his directions would be different, in the same spot, from one trip to the next. "Leave your worm still," he'd say, or

"reel in very slowly," or "lift your rod tip and let the worm back down." It always seemed to work. When we arrived at our spot, we always sat together and watched the water and talked about what we saw. Sometimes he had to experiment to see the reactions of the fish, but he usually figured it out, and without spooking the fish. I told my own children to start slow. He always said, "Easy does it, watch the water."

I once researched a book about excuses fishermen make for not catching fish. Almost every excuse from anglers throughout the country had their basis in weather or water conditions. These conditions did not match the methods they were using to catch fish. I found it interesting that all but a few anglers did not talk about using the conditions together with the activity level of the trout to alter their methods and presentations for their advantage. The anglers who "listened to the trout" and altered their ways made few excuses.

Last summer on the West Branch of the Susquehanna, there was a spot that got a lot of boat-fishing activity each evening and some of my family and I were there several times a week as well. I have never seen more fickle smallmouths anywhere, but if you have lures, bait and flies, there is a good chance you will catch fish. I usually have all of the above with us, and my pair of 14-year-old daughters were starting to say, "It looks like lures tonight, Dad," or "Dad, it's going to be a dry fly night."

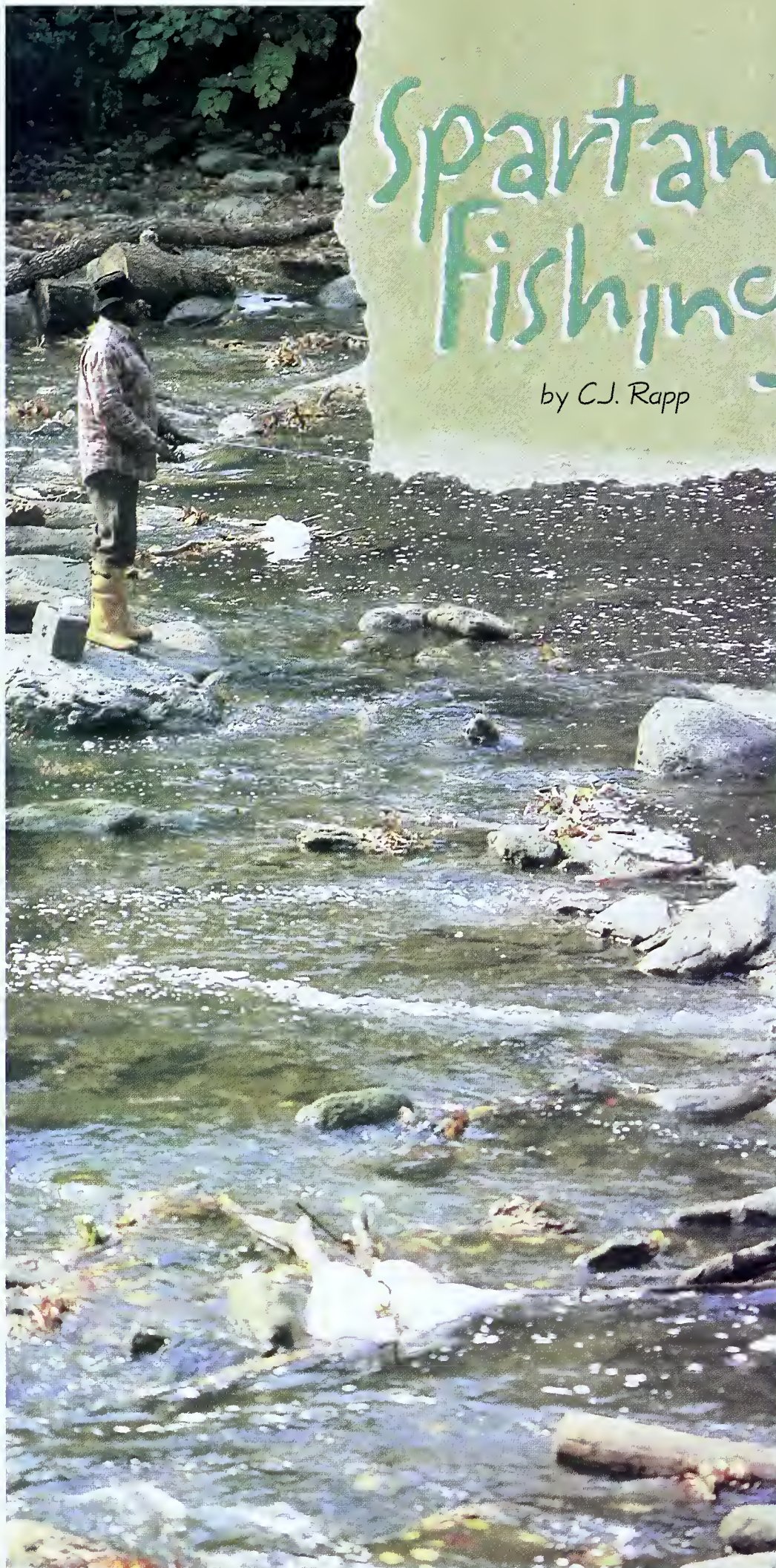
The last trip to our spot was a dry fly night. There were no flies on the water that were easily visible. All was quiet on the water and in all the boats. We started with a size 16 white fly and caught one bass after another. My 2-year-old Rachael landed her first bass. They are learning their lessons at an early age.



Matching the mood does take some observation, but it also requires taking a chance. Heightened times of activity need quick action before the period is over. I've fished many afternoons in the spring and evenings in the summer when feeding activity was said to be turned off so quickly it was as if done by a switch. Either an angler adjusts to this opportunity immediately or loses the chance. The best way to cash in is by quickly going to something easily visible to the fish and adding motion as needed. It can be a challenge to catch fish even in a feeding frenzy if the angler doesn't change the presentation to match the mood of the fish.

While working a minnow along the current for bass, bouncing a hellgrammite along a riffle for walleyes, dead-drifting worms for trout, working big lures for muskies or smaller ones for pickerel, or matching the hatch for trout, look at the mood of the fish you are after. Don't be afraid to alter your presentation to match the action of the fish. New tactics and fishing excitement will open to you.





Spartan Fishing

by C.J. Rapp

Like most of the anglers in our acquaintance, Little John and I have bosses and families. We can't time our fishing trips to match prime water levels, optimal weather conditions or lunar-related feeding cycles. And no one around here knows much about the turbo-charged style of fishing that often shows up in the magazines and on the Johnny Reb Television Network—we don't employ the latest astrophysics software and none of us would ever dream of buying a specialized rod and reel for the express purpose of stalking the mighty bluegill. Still, we don't fish to relieve stress or to commune with nature. We fish to catch fish.

Most of us get out only a couple of times a month, and nearly all of our fishing gets done on the creeks and rivers within an hour's drive of our homes near Pittsburgh. When we do get a line in the water, our hope is that something, *anything*, will take notice. If we're fishing for walleyes and catch rock bass, I go home and tell the wife we done good—likewise if we're after smallmouths and run into a mess of crappies. And some of the best fun in fishing comes about when a really big something-or-other takes a line that had been intended for something else. Fact is, I never caught a fish I didn't like.

Thus limited, we have still managed to discover a few simple techniques for fishing near home that, one way or another, will enable the part-time but passionate angler to land a few fish nearly every trip.

Spinners and spoons

An effective way to find fish is to wade through a given length of a creek, covering all the likely water with spinnerbaits and little spoons. Minnows are a major food source for walleyes, catfish and all species of bass—trout and panfish, too—and any lure that imitates minnows can attract these fish. Spinners instead of spoons provide the best entertainment in this sort of fishing. Trout, rock bass, big perch and bluegills go for a spinner as eagerly as the larger gamefish. But they are not likely to hit a spoon of even moderate size. A bonus to this wading-and-casting method is that if you're fishing a new or unfamiliar creek, you can explore a little and see what the creek looks like without taking your line out of the water.

We catch a lot of fish on a variety of little two-inch spoons. Flashy bronzes and silvers seem to work best, though the well-known red-and-white Daredevil still does the job. Spoons such as Sprites, Minnows, Sidewinders, Phoebes, Little Clios and

Wissahickon Creek, Philadelphia

Pimples are widely available, and inexpensive. Bass are the fish most commonly caught on spoons, with cats a close second.

Another inexpensive and effective type of lure is the in-line spinnerbait, on which a spinner blade is rigged to rotate around the shaft of the lure. You can cast and retrieve these baits exactly as if they were spoons, but many models also carry a "hula skirt" (or "rooster tail") that is designed to attract fish by waving up and down as the lure is bounced off the bottom and then allowed to sink again. Little John has sworn by rooster tails ever since he caught a wild brown trout on a little white job one day while bass fishing. In general, our experience has been that all the Worden, Panther Martin and Mepps spinnerbaits will catch fish, if it's a good day for spinners. And they won't if it's not.

Safety pin and road runner spinners also catch fish. We use these rigs with jig hooks, so I'll get to them later.

Retrieve speed

Finding the proper speed of retrieve is the most important part of fishing with spoons and spinners. Some spoons won't function properly at slow speeds, and some spinners are designed to work a few inches off the bottom. A quick retrieve often brings a lure too close to the surface, so we're careful to stop or slow down once or twice during a quick retrieve, to give the lure time to sink to a depth we like. We work slowly when the water is murky or colder than springtime averages, and quickly when the water is clear and not too cold. In any case, it's best to mix things up, to see how the fish feel about the subject.

It sounds crazy, I know, to fish for bass and catch trout, or to fish for walleyes with a bass spoon, but the fact is that you can catch walleyes with a bass spoon. The success of the methods described here lies in the fact that most gamefish in a particular river or creek, unlike fish in a particular lake or people in a particular neighborhood, tend to behave in similar ways. If the bass in your creek can be duped into thinking your little spoon is a minnow, so can the walleyes (though walleyes prefer spinners.) The walleyes may be in a different part of the creek and may be biting at a different time of day, but a bait that will catch one species in a creek will always take something else.

A few simple
techniques can help
you catch fish
nearly every time
you go.

The explanation, I guess, is that the variety of habitats offered by a lake doesn't exist in a creek. If a creek offers shoals of small minnows, that's what the predators will eat. Four times in one season on one particular creek, we hooked muskies that went for minnows of the size bait dealers sell as "medium," which we'd been using to catch smallmouths and walleyes. Although it's possible that we were catching the same demented musky over and over, we've also used those "medium" minnows and small minnow-type lures to pull a few of everything else out of that creek, from tiny crappies to bass that were close to 20 inches and channel cats that were even bigger. We know that the creek is full of



Spinner and jigs make great all-round lures.

minnows of that size, and we figure that this is what all the predators have become accustomed to eating. If they had more varied eating habits, we wouldn't catch so many of them, or such a mix of species.

Jigs

No item of tackle catches more fish than a package of weighted jig hooks. Either to avoid direct sunlight or the force of the current or for personal reasons they keep to themselves, a good many fish spend a lot of their time on or near the bottom. It's almost always worthwhile to jig any likely spot of a creek or river where the current is slack enough to allow an angler to work it.

Jigging, like fly fishing, has been elevated by experts to an art form. For muttonheads like John and me, jigging simply means running our bait along the

bottom. We cast, let the jig sink, and then bring it back by twitching the tips of our rods from 10 o'clock to noon (or maybe 2 o'clock, depending on how quickly we want the bait to move), taking up the slack as we go. If we're fishing plastic grubs rather than live bait, we'll also add spinners and try cranking the reel at a variety of slow speeds, keeping the rig near but not always on the bottom.

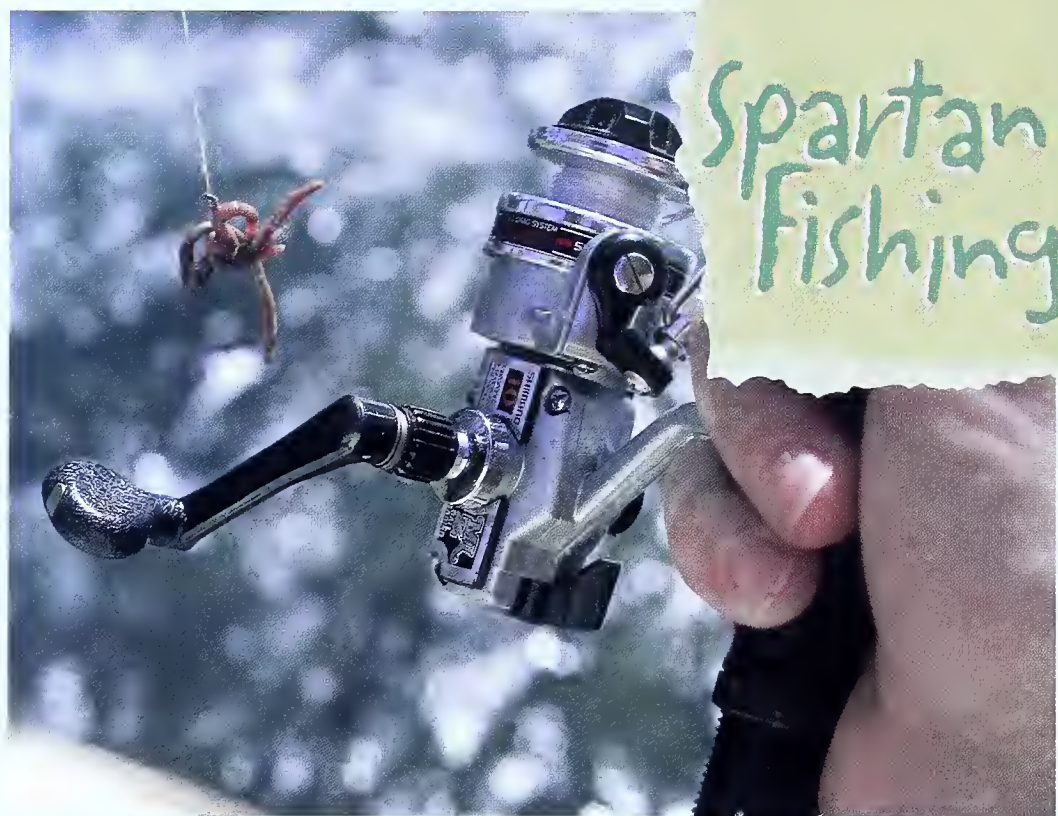
Even fools like us can appreciate how effectively jigging allows us to read what is happening at the far end of the line—where the weeds are, where the dead tree branches get snagged, where the water is deepest or slowest. With a few casts worth of experience, jigging will tell your average muttonhead things about the water in front of his eyes that he'd never otherwise have guessed.

In the tailwaters of dams along the big rivers, jigging long-tailed plastic grubs or live bait is *the* way to catch fish. More than once, while fishing below dams, I've seen pieces of someone else's jig tail in the throat of a walleye or a sauger I'd just caught on my own jig. And on days when we couldn't get the walleyes to bite, we've caught bass, all sorts of panfish and some monster channel cats while jigging in the tailwaters.

There are quite a few snags in these

tailwaters, and you'll lose a lot of gear. A lot of gear. It's not unheard of to lose your rig twice on two successive casts, which is why anglers who fish tailwaters can tie an improved clinch knot quicker than the man who improved it. It's worth the effort, though. There's a ton of fish in the waters below dams.

A jig of at least 1/4-ounce is required to fish the tailwaters. Where the water is slack, a lighter jig works, but even there you need some weight to get to the bottom in areas with heavy plant growth. The fish don't seem to notice whether or not a jig head is painted. The bait is what counts, and hook size is also important. We try to use as small a hook as possible. Crappies can strip a minnow off a size 4 hook, and walleyes will mouth a plastic grub or a minnow and spit out a big hook



Trout and panfish often go for redworms. Bass and walleyes prefer nightcrawlers. You could buy 'crawlers and cut them into smaller pieces. Rock bass, crappies, bluegills and perch can be taken on a bit of 'crawler no bigger than a pencil eraser.

before you can set it. Largemouth bass, on the other hand, don't mind a big hook, and neither do catfish.

Live stuff, pork stuff, hairy stuff and any number of twisty plastic things can be attached to jig hooks. Which offering is best for which trip is a matter for argument, but some basic rules apply. Plastic grubs are the most popular style of artificial jig bait. To fish these, a jig hook with a collar is required—the collar keeps the grub from sliding around.

Plastic tails come in all colors, from earth-hued browns, greens and blacks to neutral white and yellow to Smurf-vomit blues and sparkles. Live baits and natural colors seem to work best in clearer waters. Smurf-vomit, what the experts call "attractor" colors, is effective in muddy or stained waters. Little John and I catch a lot of fish with yellow and white, but our success with these colors may be caused by the fact that we've fallen into the habit of using them under all conditions, and will add a bit of night-crawler or maybe a spinner to vary our presentation, when the neutral colors alone aren't doing the job.

We use two simple styles of spinning to give a bit of flash to our jigs. A safety pin spinnerbait is made up of a V-shaped wire with a loop at the apex, through which you attach your swivel. The spinner blade is attached to one end of the V, while the jig hook, dressed in a plastic grub or a hula

skirt, is fixed to the other. A road runner is a jig hook where the spinner blade attaches to a swivel behind the jig head. Either of these will add color and motion to your rig, and both are worth trying if the fish aren't going for your plain jig. A good way to fish these types of spinners is to retrieve as slowly as possible. A plastic tail and a spinner blade display a lot of action at slow speeds. On days when we can't seem to get anything to bite, a yellow plastic tail on a roadrunner, fished very slowly, is our bait of last resort.

Live bait

Live baits almost always produce more fish on a jig than they do on an ordinary hook-and-sinker combination. One reason for this is obvious: Jigging covers more water. A minnow hooked through the lips on an ordinary hook and plopped on the bottom with a sinker may be completely hidden in plants that the angler doesn't even know are down there, until he gets bored with catching nothing and hauls in his leaf-tangled bait. A minnow hooked to a jig and played back to where the angler is standing won't spend more than a few minutes in any one spot.

Certain snooty fishermen pretend to regard live bait with the same sort of horror that the Queen of England feels when a dinner guest digs into the escargot with a soup spoon. Fact is, live bait is fun, and

will catch fish. Fishing the bottom with a hook and sinker, you hook your worm or minnie, cast, pull the slack out of the line and wait for the fishing gods to smile. You're free to yack with your companions or to enjoy the fact that you have no companions.

Trout and panfish often go for the small type of worm sold as "redworms." Bass and walleyes prefer nightcrawlers. We usually buy crawlers, knowing that we can chop them up into smaller pieces as we like. Rock bass, crappies, bluegills and perch can be taken on a bit of 'crawler no bigger than a pencil eraser.

Catfish, walleyes, bass, trout, muskies, pike and crappies will all hit minnows. We usually buy "medium" minnows (which are sometimes called "fatheads"), having learned from experience that everything in most creeks will go for them. On some creeks, however, the gamefish have become accustomed to feeding on larger baitfish, and on these creeks fishing with anything other than a big "shiner" is a waste of time. The smallest minnows ("Three dozen for a dollar!") won't catch much of anything, because they tend to die in the bucket before you get them on your hook. Whatever the size of the minnows in the bucket, we keep them lively by constantly adding fresh creek water.

Some great moments can occur, after your minnow or worm settles on the bottom. Many times while we were sitting still and hoping for the best from our live bait, raccoons, beaver, muskrats and entire families of deer have waltzed past us at close quarters. A human sitting near a fishing pole doesn't seem to bother these creatures—they'll look you over, make snide remarks among themselves concerning your tackle, and then continue about their business. More to the point, of course, is that a minnow or a worm on the bottom can catch fish, whether or not the muskrats approve of your gear.

Live bait on a bobber

Another technique that catches fish involves casting live bait on a bobber into the current of a creek or river. This trick is so simple that it hardly requires explanation. But I've shown it to so many people who'd never seriously tried it before, but who had success with it as soon as they tried it, that it's worth describing here. Drifting a bobber isn't the most elegant sort of fishing, but it's fun and it works.

This method is dynamite on waters where the fish tend to hug the bank. One creek that we fish this way runs shallow,



not more than four feet at its deepest, so we leave only from one to 2 1/2 feet of line between the bobber and the minnow (or worm). A small splitshot provides enough weight to cast. We let the rig drift downstream as far as seems convenient, and then haul it back.

The fish occasionally strike while the bobber is drifting downstream. And *all* kinds of things happen while we're reeling back. The bobber is drawn to the bank, where the current is slack. This allows us to work any trees or underwater structure that looks encouraging. One sunken tree along this creek is a haven for crappies, largemouths and channel cats, so we always let the bobber sit above it for two or five or 15 minutes, depending on how eager we are to cast again.

You can use the current and the reel-back to carry your rig to places along the bank where overhanging brush would otherwise tangle your cast. This creek, for instance, is lined with trees and thick bushes that make it impossible to cast close to shore—

even if we're wading three feet from the spot where we want to cast, the low-hanging branches may not allow it. Places along the bank with enough clear space to cast are few and far between. By tossing a bobber into the current and reeling back at different distances, we can cover every point of water on our side of the creek without leaving our sittin' buckets.

Some lures, like crappie jigs, can also be worked effectively by this method. And bobber-fishing in the current is preferred to jigging by anglers who fish the tailwaters of certain dams, where experience has taught them that the snags will take any hook that dares to touch the bottom.

High, fast water

One obstacle to fishing that we have never really been able to overcome is high water. There is nothing a Pennsylvania creek likes better than to overflow its banks and turn itself into a torrent. We have never discovered a way to get the fish to bite consistently in these conditions. However, all anglers carry in their pockets a way around this problem: Car keys. If we arrive at a favorite creek and find the water high and fast, we go somewhere else.

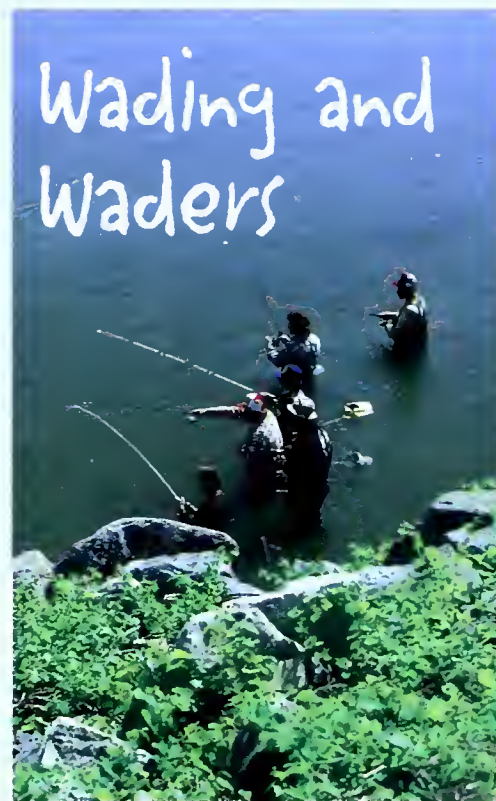
Usually, we head for a lake. High water on a creek is a problem we can't solve, but the flooded shoreline of a lake can be a bonanza. The best bass fishing we've ever experienced took place at a spot we'd always regarded as *terra firma*. Rain had been pouring down all over the region for a week. A local Corps of Engineers lake had risen to as high a level as anyone could remember. We toodled around until we found some slack water that was reasonably clear of trees and bushes. The largemouths clearly regarded this submerged shoreline as the best restaurant they'd seen all summer. They couldn't get enough of the plastic grubs and nightcrawlers we tossed at them.

More often, on days when the creeks are flooded, we find ourselves on a muddy lakeshore hauling in yellow perch, bluegills and baby bass, telling each other all the while that the big bass *do* come to these flooded lands. And of course, a few hours spent catching little guys and hoping for big guys is better than no fishing at all.

Little John calls all this stuff "Spartan" fishing, because we work with a bare minimum of gear. Our poles; a little tackle box containing hooks, swivels, sinkers, jigs, bobbers and a few favorite lures; a water jug and a minnow bucket or a tub of worms—that's all we carry. We never know, on a given day, whether it's the spoons, the spinners, the jigs or the live bait that'll catch

the fish. And we never know what kind of fish we're going to catch. We do know, however, that Pennsylvania's waterways are bank-full with all kinds of fish, and we know that our muttonheaded methods will almost always land something.

And as long as we land something, we can go home and say we done good. ☐



Fishing need not be an expensive hobby, but anyone who spends any amount of time fishing in creeks should invest in a set of waders. A good pair of booted, neoprene chest waders costs less than \$100, will last practically forever, and the freedom of movement they provide makes them worth the price.

Wet-wading is popular in Pennsylvania, and it's a great way to fish if the weather is right. However (and this is a big however), no sane fisherman counts on good weather. Standing waist-deep in cold water on an overcast day while your shoes fill with grit is a brand of fun most of us would rather avoid. But if your time on the water is limited to a few precious hours, you don't want to find yourself stuck high and dry on the wrong side of the creek, or kept away from the good-looking water by the trees and bushes that line the bank. Chest waders put most of the creek within reach of your bait, and your dry socks.—CJR.

the \$19.95 Small-Boat Cover by Gary Diamond



1. End connections to the frame are constructed from a Tee fitting and two 45-degree angle fittings. Connect them with short lengths of PVC pipe and glue them into place with PVC cement.



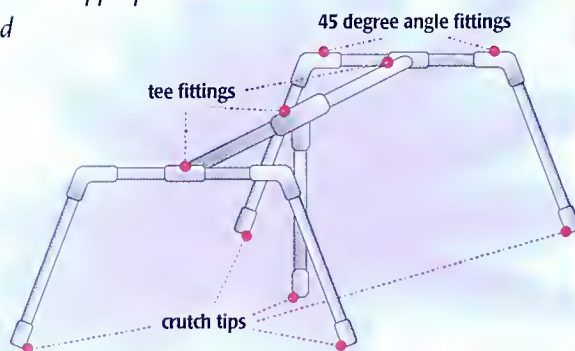
2. The legs should measure about four feet. Insert them into the 45-degree angle fittings.



3. For added structural support, glue a center tee fitting in place and insert a vertical leg into the tee's base, but don't glue it.



4. Insert the frame's rear legs into the appropriate sockets.



Sometime during or after the season, you're probably going to want to remove the accumulated dirt, stains and grime from your boat. This task usually involves scrubbing the boat from top to bottom with a stiff, bristled brush and cleansers designed specifically for marine use. Then a couple of coats of wax is applied to the hull, console and anything else that is subject to the elements.

With all this maintenance, your boat certainly looks brand-new. Here's an inexpensive way to keep it looking good throughout the boating and fishing season.

The secret to keeping small to mid-sized trailerable boats looking new is keeping them covered when not in use. This is easily accomplished by constructing a suitable frame to support the boat's cover. It can be something as simple as a few 2X4s nailed together to form a steep-sloped "A" frame, but because of the wooden frame's construction, there's always a problem of storage while you're using the boat. Where do you put a bulky, 20-foot structure that weighs 80 pounds? The solution to this problem was solved several years ago when PVC pipe was invented.

PVC pipe is strong, lightweight and durable. It doesn't rust or rot, and it's relatively inexpensive. A typical 10-foot length of 3/4-inch diameter PVC pipe ranges from \$2.50 to \$3. The pipes are easily joined using PVC cement and various PVC fittings, all of which are available at hardware stores. The beauty of using PVC pipe for constructing a boat-cover support frame is that it can be made so that it can easily be set up by one person, and when disassembled, it takes up almost no storage space.

The PVC boat-cover frame can be used both summer and winter. It not only protects your boat from winter's harsh elements, but it also decreases the harmful effects of intense, ultraviolet radiation caused by direct exposure to the sun. It eliminates stains caused by leaves and other debris dropping from trees throughout most of the year. Your boat will look better, last longer and survive the worst weather mother nature has to offer if it's kept under a protective cover. ☐



5. Cover the boat with a poly or canvas cover held in place with bungee straps.

Material cost
(for a 14-foot boat)

\$19.95

Construction
time
1 hour

Weight
6 pounds

Building time
3 minutes



6. Leave at least one end of the cover open to provide adequate ventilation and prevent the formation of mildew.



Pennsylvania ANGLER & BOATER

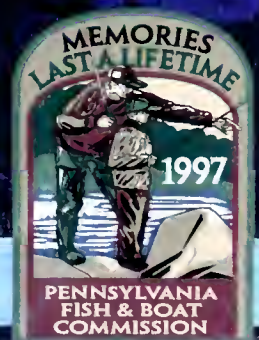
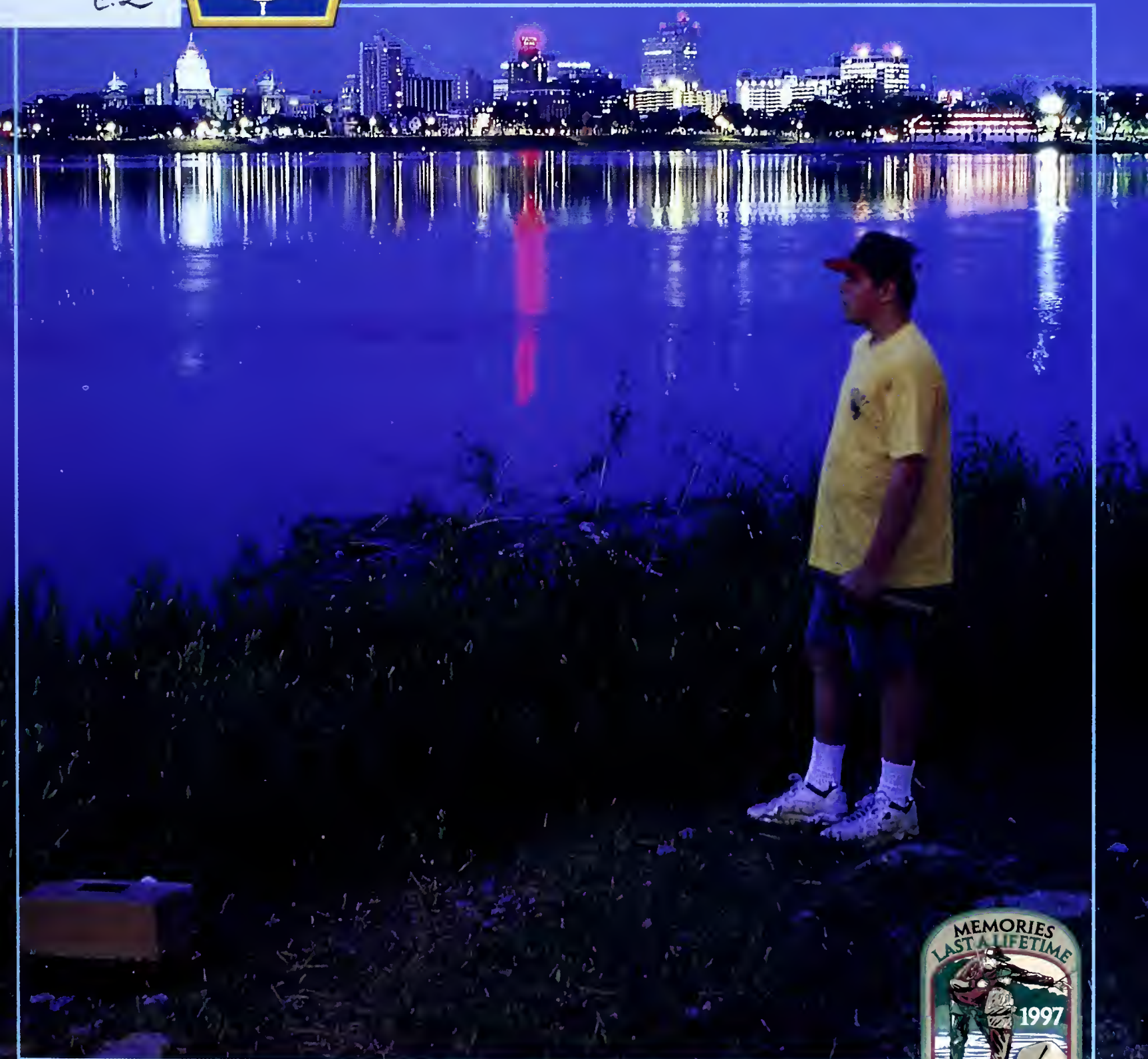


September/October 1997

\$3.00

The Keystone State's Official Fishing and Boating Magazine

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INSIDE: Catfishing at Night • Shoreline Bass Fishing • Autumn Blues • and more!



PROTECT • CONSERVE • ENHANCE

Waterways Conservation Officers and Law Enforcement

The Fish and Boat Commission is a small agency with a dedicated staff of about 432 full-time and 160 seasonal employees. Our employees range from fish culturists to engineers, from fisheries managers to aquatic resource educators. Each of these employees plays an important role in our efforts to “protect, conserve and enhance” fishing and boating in Pennsylvania; each contributes to accomplishment of our mission of providing fishing and boating opportunities through the protection and management of our aquatic resources.

About one-quarter of the Commission’s full-time employees focus their efforts on protecting our resources. The “thin green line” of waterways conservation officers are on the front lines of working for clean water, safe boating, and compliance with fishing and boating laws and regulations. Law enforcement is just one of the jobs of our waterways conservation officers. They are also key players in our education, fish stocking, safety, public relations and other efforts. Our waterways conservation officers are joined by a dedicated cadre of more than 300 volunteer deputies who assist in enforcement of fishing and boating laws and regulations.

The Fish and Boat Commission is committed to building customer satisfaction among the anglers and boaters of Pennsylvania. As part of these continuing efforts, we recently asked Responsive Management to conduct a random survey of licensed anglers and registered boaters to gather their opinions about our conservation officers. Twenty-seven percent (27%) of those surveyed indicated they had contact with a PFBC law enforcement officer within the last three years. The vast majority of these contacts, fully 79%, were in connection with casual contacts along Pennsylvania waterways or at meetings and public programs. Only 9% of these contacts were in connection with warnings or citations.

Ninety-three percent (93%) of those who had contact with our officers agreed or strongly agreed that the typical waterways conservation officer or deputy is professional in carrying out his or her duties. Ninety-two percent (92%) reported that our officers were courteous in their contacts with them. Eighty-five percent (85%) observed that our officers were fair, and eighty-two percent (82%) said our officers clearly communicated fishing and boating laws and regulations.

These statistics, which are based on a statistically valid random survey, are indicative of the fine work done by our conservation officers. Our officers log hundreds of thousands of public contacts each year. The vast majority of these contacts occur not in the context of formal law enforcement actions (warnings/citations) but in the daily interplay between those who enjoy Pennsylvania’s woods and waters and those who work hard to make sure the waters are used safely and in compliance with the

rules. We expect a great deal of our conservation officers. We ask them constantly to demonstrate the highest standards of tact, decorum and professionalism in situations that are sometimes stressful and difficult. And, as you can see from the survey results, our officers deliver. For example, we recently received an electronic mail message about one of our deputies who went the extra mile to help a family who had lost their keys in the water.

This is not to say that we never receive complaints about our conservation officers. Each year, we receive a relative handful of complaints and inquiries. The Bureau of Law Enforcement investigates every complaint. Most of these complaints arise because of misunderstandings or breakdowns of communication in stressful circumstances. When corrective action is warranted, we take it. But, all in all, given the thousands of contacts between conservation officers and the public, the Commission takes justifiable pride in the fine work done by our officers, from Bureau of Law Enforcement Director Ed Manhart to the officer in the field.

One of our officers’ most important jobs is to enforce Pennsylvania’s laws relating to boating under the influence of alcohol and controlled substances. Pennsylvania was one of the first states to enact an “implied consent” boating under the influence law. This law, enacted in 1984, provides that anyone who operates a watercraft on Pennsylvania waters gives his or her consent to a chemical test of the alcohol and controlled substance content of his or her blood, breath or urine. Boating under the influence is one of the most serious offenses under the Fish and Boat Code; in addition to misdemeanor fines and penalties, conviction results in automatic suspension of boating privileges. Each year, our officers file charges against a few score boaters who operate under the influence.

Unfortunately, since its enactment in 1984, our boating under the influence law has not kept pace with changes to the very similar provisions of the Vehicle Code on driving under the influence. Last year, the General Assembly enacted a comprehensive update to the laws on driving under the influence; now it’s time for changes to the boating under the influence laws. Senate Bill 55 is important legislation that will make major improvements to the law on boating under the influence. It passed the Senate by a unanimous vote last spring, and the House Game and Fisheries Committee approved it (again unanimously) in July. When the General Assembly returns in September, we hope the state House will take prompt action to approve this much-needed update to the law on boating under the influence.

The new boating under the influence law, as well as other recent and proposed changes to laws and regulations, will enable our conservation officers to serve the anglers and boaters of Pennsylvania even better.

Peter A. Colangelo
Executive Director
Pennsylvania Fish & Boat Commission

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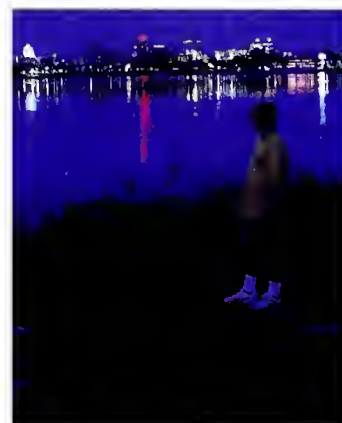
The Keystone State's Official Fishing and Boating Magazine

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In the still of the night

This issue's front cover shows Pennsylvania angler Nick May searching the shores of the Susquehanna River at Harrisburg for a nighttime catfishing spot. For a detailed look at night fishing for catfish in urban areas, please turn to page 46. After you've caught and cleaned a few catfish, check out "Fishin' from the Kitchen" on page 48 for a delicious idea. The front cover was photographed by Art Michaels.





Wants old issue

I was wondering how I could purchase a past issue of *PA Angler*? About 23 years ago I was fishing with my father. A friend of his, Bud Eric, wrote an article that contained my picture about that particular fishing trip. I was approximately 8 years old with a pile of perch on the ice at my feet. My daughters are now 8 and 5 years old and I would love to share that article with them because they are ice fishing enthusiasts, too. If you can help locate this issue, I would greatly appreciate it. My maiden name is Audra Heiberger—Audra L. Sidelinger (via email).

We've searched the issues of about 23 years ago and haven't found the picture. Nevertheless, perhaps an enterprising reader might find that photo and let us know! We'll let you know if we hear from someone.

We often receive inquiries about old issues. No doubt you've seen the articles we've been running about our theme, "Fishing and Boating Memories Last a Lifetime," with old file photos. Whenever we publish old photos, someone always identifies a relative or friend and asks for a copy. The most recent occurrence was a few months ago when someone recognized his father, uncle and himself in a 40-year-old photo we published in the magazine about Fisherman's Paradise ("Paradise Found," by Dan Tredinnick, page 54, March/April 1997 issue).—Ed.

Potter County memories

Just a note to say thank you. I recently had the pleasure of making a trip to Potter County from the state of Indiana to rekindle memories of trout fishing. I also

brought some friends who have never had the pleasure of trout fishing. We had a great time. The weather was mighty cold and it snowed every day, but that didn't seem to slow the trout and our enjoyment down a bit. We caught a lot of trout in Potato Creek, Pine Creek and Lyman Lake and Creek. We did a little fishing in a couple of small streams and did quite well there, too. I really enjoyed fishing the old washed out dam north of Austin and catching trout right at the dam. I want to thank you for the info you supplied before the trip on the location of a couple of streams.

My friends and I want to tell you what a great job you are doing and thank you for the enjoyment. We are planning to make the trip an annual event. Keep up the good work and thank you.

Can you drop me a line and let me know how to subscribe to the *PA Angler & Boater*? Just remembered how much I enjoyed reading it.—James Fricke, Evansville, IN.

Great idea

That was a great idea to put the In-Season Stocking Schedule in the March/April issue. Please continue to do so! Your magazine is very helpful with our fishing trips, showing us new places to try and a new way to fish for trout. My sons and I are giving fly-fishing a try.—Dave Bowers, Roaring Spring, PA.

We're delighted you're pleased! This coming season we're going to print the In-Season Stocking Schedule in the magazine again, for the benefit of readers, but we're also going to print it separately. Stay tuned for more details.—Ed.

Darters and mussels

The new *Pennsylvania Angler and Boater* is great! I especially enjoyed Andrew Shiels' article about darters ("Pennsylvania's Dynamic Darters," page 33, January/February 1997 *PA&B*) and Karl Blankenship's article on mussels ("Mussels," page 46, January/February 1997 *PA&B*). Hopefully, future issues will bring articles on reptiles and amphibians, which were neglected lately in the *Angler*.—Stan Kotala, Altoona, PA.

Margined madtom?

I was just checking out some local streams when I found this one stream that looked like a good place to fish. I put a worm on my hook and about five minutes later I landed a 28 1/2-inch carp. After catching and releasing about 12 carp and

suckers, I caught something new—little catfish about six or seven inches long. I only caught two that day and I haven't caught one since. I asked a friend about them and he said that they were mudcats. Is he right? Also, could you please give me some tips on how to catch these "mudcats." Thanks!—Karl Hanson, Chambersburg.

The little catfish, or "mudcats," that you caught in a stream near Chambersburg are likely margined madtoms. They are found in rocky or rubble-bottomed streams and hide among and under stones. I can't say that I know any anglers who pursue these fish or any methods for catching this species. They rarely exceed eight inches in length and usually feed at night. They are a member of the flowing-water diversity of fishes and many anglers are unaware of their existence.

Another possibility is that you caught a small bullhead. Bullheads are a member of the catfish family and reach lengths up to 17 inches. They inhabit slower waters with mud bottoms.

The way to differentiate between these two catfish is to observe the relationship between the adipose fin (the small, fleshy projection on the back in front of the tail; just like a trout) and the tail. The tail and adipose fin are fused together on the madtom. The adipose fin and the tail are separate on the bullhead.

Good fishing in your exploration of waters in the Franklin County area!—Larry Jackson, Area 7 Fisheries Manager.

Trout stocking variables

Thank you for your prompt response to my question on why the Mar/Apr 1997 *PA&B* was late. I think the decision to delay was very good. Also, as an avid trout fisherman, I thought the article on the variables of trout stocking was excellent ("Getting Opening Day Trout to You," by Linda Steiner, page 16, March/April 1997 *PA&B*). As usual, the *Angler* was outstanding. For your information, it is the only fishing publication I subscribe to. Please keep up the fine work that you all do at the *Angler*.—Kirk Waggoner, via e-mail.

Still the favorite

Your magazine is still my favorite, and always will be despite the griping I've seen in the "MAIL" column lately. Some people



are never happy. You people have always produced a top-quality product, whether it be the magazine or the fantastic fishing you have helped our state produce. Keep up the great work. By the way, I still think the price of a fishing license is the best bargain around. I think it is worth five times the amount it currently is.—*Dan D'Amico, Canonsburg, PA.*

Water pollution brochure

I was very impressed with the article on water pollution that appeared in the October 1996 issue ("Water Pollution," by John A. Arway). I would be interested in obtaining reprints of that article for distribution to my fellow members of the Donegal Chapter of Trout Unlimited, here in Lancaster County.

Would you kindly give me information on how I might go about obtaining them? I am hoping that since we are a non-profit conservation organization and intend to use them for education and raising awareness, we might be able to get them at no charge.—*Gary Roulston, via email.*

Single copies of pamphlets are free, but please include a self-addressed, stamped envelope. We're happy to receive requests for more than one copy of a pamphlet or free publication. We consider each request individually. Whether or not we ask for payment depends on how the piece will be used and the number of copies sought. In most cases, we send the materials at no charge. Rarely do we request payment, and in those cases, we often ask only for shipping charges on large orders. Our publications list with complete ordering information appears as a separate insert in this issue between pages 48 and 49.—Ed.

Catch and release

I just finished reading the article, "33 Summertime Places to Catch Trout," by Mark Nale (July/August 1997). I liked the article, but every time I read an article like that I cringe. I don't think the writers of these articles realize that 95 percent of people who fish for trout can't fish without keeping everything they catch. It doesn't matter if they eat trout or not. I think it's an ego thing to show people they caught their limit.

I used to fish a stream in Perry County in July and August. I usually caught 10 to 12 trout. Last year I went over in July and started fishing. I fished several holes and pockets where I always caught trout, but

didn't catch anything. When I went around the next bend I got my answer. There was another fisherman with his creel over his shoulder. I asked him how he was doing and he said he caught one (it was in his creel). I told him I fished a stretch of another stream in the morning and didn't catch anything. He said he fished this stretch the week before and caught his limit.

I cannot believe that anyone who can catch their limit in July would not have his freezer full by then. It's hard to believe that these people don't realize that there are only so many trout stocked in a stream, and when you take them all out that's it until the next year.

I have been writing to the Fish and Boat Commission for years to try to get the limit of trout set at four per day. That's plenty of trout for anyone. That will leave some trout in the streams for the people who can't follow the stocking trucks, but who can only fish on weekends.

I would like to see you publish some articles on the benefits of catch and release.—*Hobart Acker, Harrisburg, PA.*

Supports musky program

As a Pennsylvania resident and consistently licensed Pennsylvania fisherman, I am writing to express my sincere and enthusiastic support for the recent Commission proposal for a program to restore a wild Great Lakes strain muskellunge population to the Presque Isle Bay region of Lake Erie.

Although I live in central Pennsylvania, I and many other informed anglers applaud any and all progressive Fish & Boat Commission "investment" efforts such as this, which provides a truly balanced and representative trophy fishery. If this proposed program is indeed implemented, it will undoubtedly restore (or create) a much needed, highly-sought, precious resource for Pennsylvanians and other anglers to enjoy.

In the eyes of many thousands of educated fishermen both here and throughout the country, word of proactive management plans such as this renews our passion for the sport, and faith in the agencies responsible for creating such opportunities. It is indeed a great pleasure to see Pennsylvania considering a sound leadership role in the country's booming ranks of those eagerly pursuing musky fishing, and this community's growing interest in a legitimate trophy fishery. It is certainly a wise use of resources when programs like

these will hopefully one day allow anglers to further invest in local economies while seeking a trophy instead of always traveling to other states and Canada for chances like these.

I among many thousands of other fishermen also endorse the accompanying plans to raise the muskellunge minimum length limit to 40 inches and reduce the daily bag limit to one for Presque Isle muskies. This makes not only good common sense with regard to perpetuating the species and increasing the availability of larger, reproducing fish, but also supports the position of a majority of dedicated anglers that a musky does not achieve true "trophy status" until it is at least 40 inches long. These proposed accompanying regulations would go a long way toward ensuring a true trophy fishery.

We thank you and the Commission for your efforts and consideration. Please allow me to conclude finally by stating that this type of program would do well not only at Presque Isle, but throughout Pennsylvania's potentially highly viable trophy waters. Although great in-roads have been made by the Commission in musky management, and in particular in bass, walleye, and trout programs, a true trophy musky fishery remains the one area today where angling interest is growing the fastest, and where most new information and management plans are needed. Those of us close to the resource see the potential for enhancing trophy opportunities here in Pennsylvania. If such regulations that support the resource were expanded to other already viable waters, there would be much to gain. If waters that have the potential to support and sustain an improved musky fishery, such as the many hundreds of miles of the fertile and diverse Susquehanna River drainage (much like the upper Mississippi, which supports wild muskies) were further studied, stocked, managed, and anglers' educated (in terms of misconceptions regarding sportfish predation and the importance of catch and release), we may soon have a more highly sought, even greater state "trophy" resource desired by a wealth of anglers. Muskies, Inc., members like me would be glad to assist!—*Duane Drozdowski, Harrisburg, and member, Three Rivers Chapter of Muskies, Inc.*

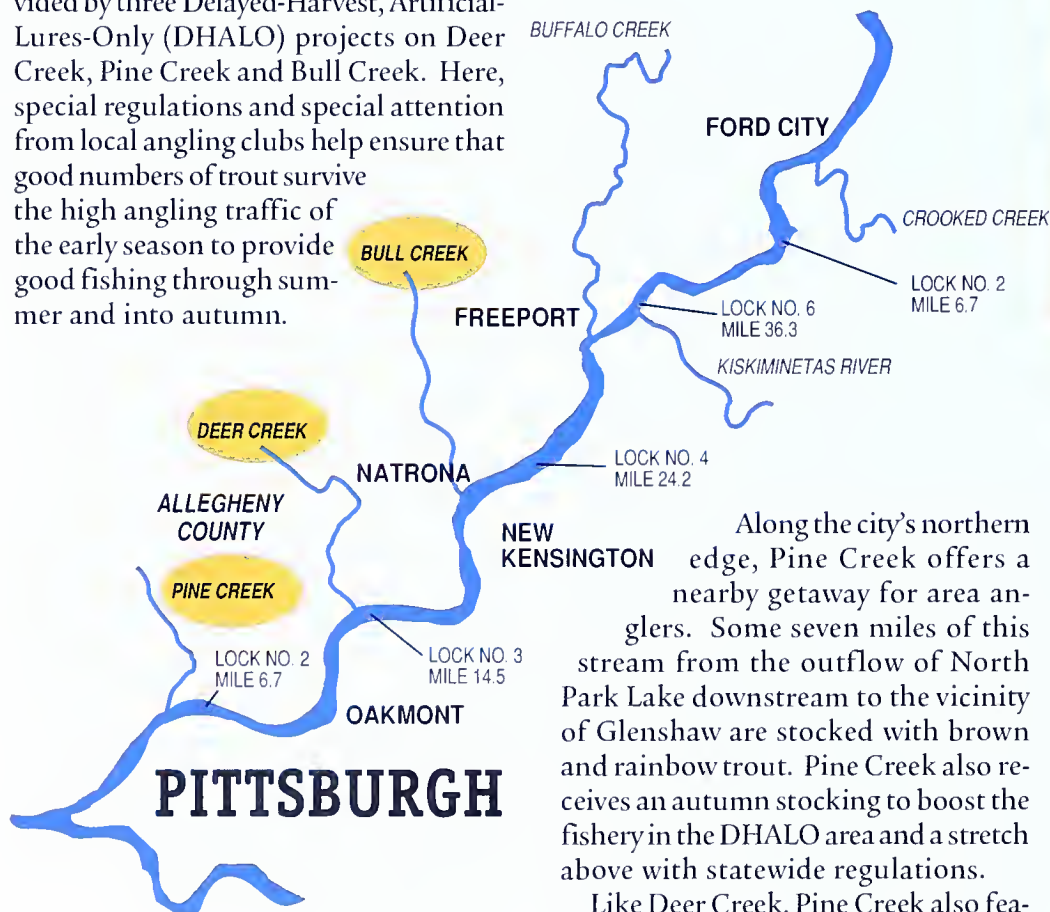
GREAT Trout Fishing Near Pittsburgh

by Robert L. Petri

Within a little more than an hour's drive of downtown Pittsburgh lies some of the most varied trout fishing to be found anywhere in the Commonwealth. From the suburban settings of Deer Creek in Allegheny County to the streams of the high, isolated country along the Laurel Ridge in Somerset County, there is much to be said for the early autumn trout fishing here in the shadow of the "Renaissance City."

Deer, Pine, Bull creeks

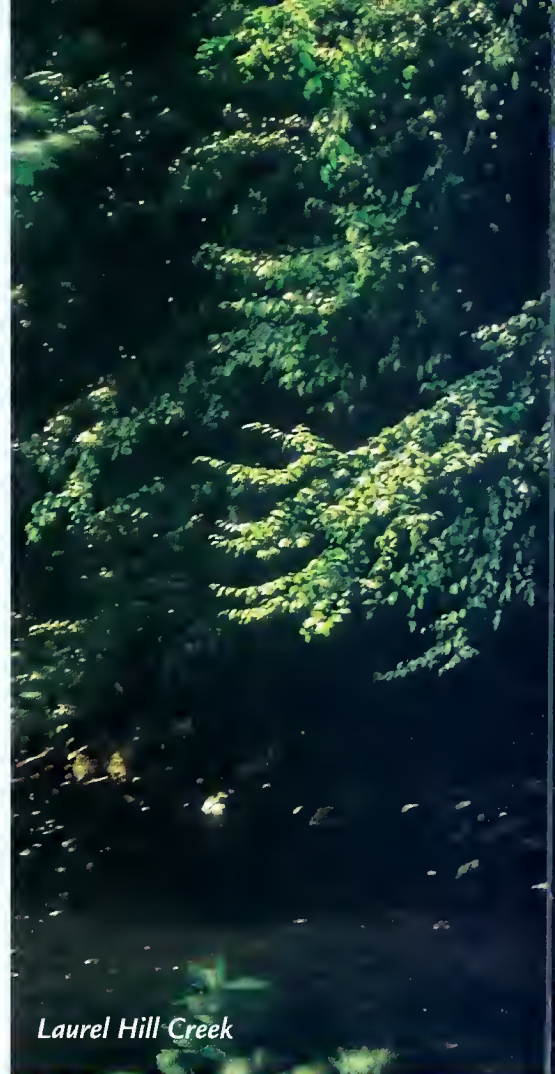
Even though the scenery is no doubt better in the outlying regions to the south and east of the city, there is good early autumn trout angling within a dozen miles of the lights of downtown Pittsburgh. The backbone of these opportunities is provided by three Delayed-Harvest, Artificial-Lures-Only (DHALO) projects on Deer Creek, Pine Creek and Bull Creek. Here, special regulations and special attention from local angling clubs help ensure that good numbers of trout survive the high angling traffic of the early season to provide good fishing through summer and into autumn.



Deer Creek is a medium-size waterway that skirts the eastern edge of the metropolitan Pittsburgh area as it flows southward to meet the Allegheny River near the village of Harmarville.

About eight miles of the stream from above State Route 910 near Indianola downstream are stocked with brown and rainbow trout both before and during the season. Deer Creek also benefits from an early autumn stocking in the DHALO section.

The best early fall fishing on Deer Creek can be found in the 2.1-mile DHALO project that begins at Route 910 and continues downstream along the edge of the Rose Ridge golf course.



Laurel Hill Creek



tures a DHALO project in its middle reaches. This 1.4-mile project extends from the abandoned railroad bridge near Duncan Avenue downstream a short distance below the State Route 4019 bridge on the stream. The further improvement of the Pine Creek fishery is ensured because it has been adopted by the Pittsburgh-based Penns Woods West Chapter of Trout Unlimited under the Fish & Boat Commission's highly successful "Adopt-a-Stream" program. Chapter stream improvement project work began on Pine Creek this summer.

For 1997, a new Allegheny County De-

Along the city's northern edge, Pine Creek offers a nearby getaway for area anglers. Some seven miles of this stream from the outflow of North Park Lake downstream to the vicinity of Glenshaw are stocked with brown and rainbow trout. Pine Creek also receives an autumn stocking to boost the fishery in the DHALO area and a stretch above with statewide regulations.

Like Deer Creek, Pine Creek also fea-



layed-Harvest area has been added on the waters of Bull Creek, about 12 miles northeast of the city and due north of the Allegheny River community of Brackenridge. Thanks to the cooperation of private landowners along the stream, a 1.0-mile section of Bull Creek from Millerstown upstream almost to the Butler County line is now managed under special regulations. These regulations along with a generous early autumn stocking of brown and rainbow trout ensure good numbers of fish throughout the summer and into fall.

Another of the Pittsburgh area's outstanding groups of sportsmen/conserva-

tionists, the New Kensington-based Tri-County Trout Club, will be working in the Bull Creek watershed, helping to improve angling opportunities for all.

Dutch Fork Creek, Pike Run

A little farther away from the lights of Pittsburgh, in the rolling hill country of Washington County to the southwest of the city, a pair of new DHALO projects are bringing exciting new angling opportunities to a portion of Pennsylvania not known for its trout fisheries. Beginning this year, a 1.8-mile section of Dutch Fork Creek in extreme western Washington

County is managed under DHALO regulations allowing anglers to work over good numbers of stocked rainbow and brown trout. The section extends from the first stream bridge on I-70 a few miles west of Claysville downstream to the backwaters of Dutch Fork Lake. A portion of the project section flows through Pennsylvania Fish & Boat Commission property. Delayed-Harvest regulations and a scheduled autumn stocking here will keep good numbers of fish on the project area.

Beginning this season, a 1.1-mile section of Pike Run, also in Washington County, provides a Delayed-Harvest an-

gling experience in a small-stream setting. The project section begins at the power line downstream of the State Route 2036 bridge, a few miles due west of the town of California. The project extends upstream to the junction with an unnamed tributary above the State Route 2079 bridge. Like Dutch Fork Creek, an autumn stocking will help keep good numbers of brown trout and rainbow trout in Pike Run from October through the winter months.

Loyalhanna, Laurel Hill creeks

Of course, Pittsburgh area trout enthusiasts have traditionally looked to the east and the more rural and mountainous settings of Westmoreland, Fayette and Somerset counties for their fishing destinations, and these areas still provide some of the best fishing within a reasonable drive of the city. Streams like Laurel Hill Creek and Loyalhanna Creek among others have long traditions of angling excellence.

Loyalhanna Creek is one of the best-loved and most heavily fished trout streams in southwest Pennsylvania. This is relatively big water by Pennsylvania trout stream standards, averaging about 45 feet wide at the top of the stocked section, near Ligonier along US Route 30 in Westmoreland County, and almost twice that size at the

rushes through boulder-studded glides and long, slow pools anchored by a good canopy of streamside trees. All this habitat provides good cover for the abundant brown and rainbow trout stocked in the stream. Along the way, Loyalhanna Creek is closely paralleled by US Route 30, and access for the most part is very good.

Even though high summer water temperatures can put a damper on the Loyalhanna fishery, the cooler nights of September let the stream and the trout return to a higher activity level, and early autumn fishing can be quite good.

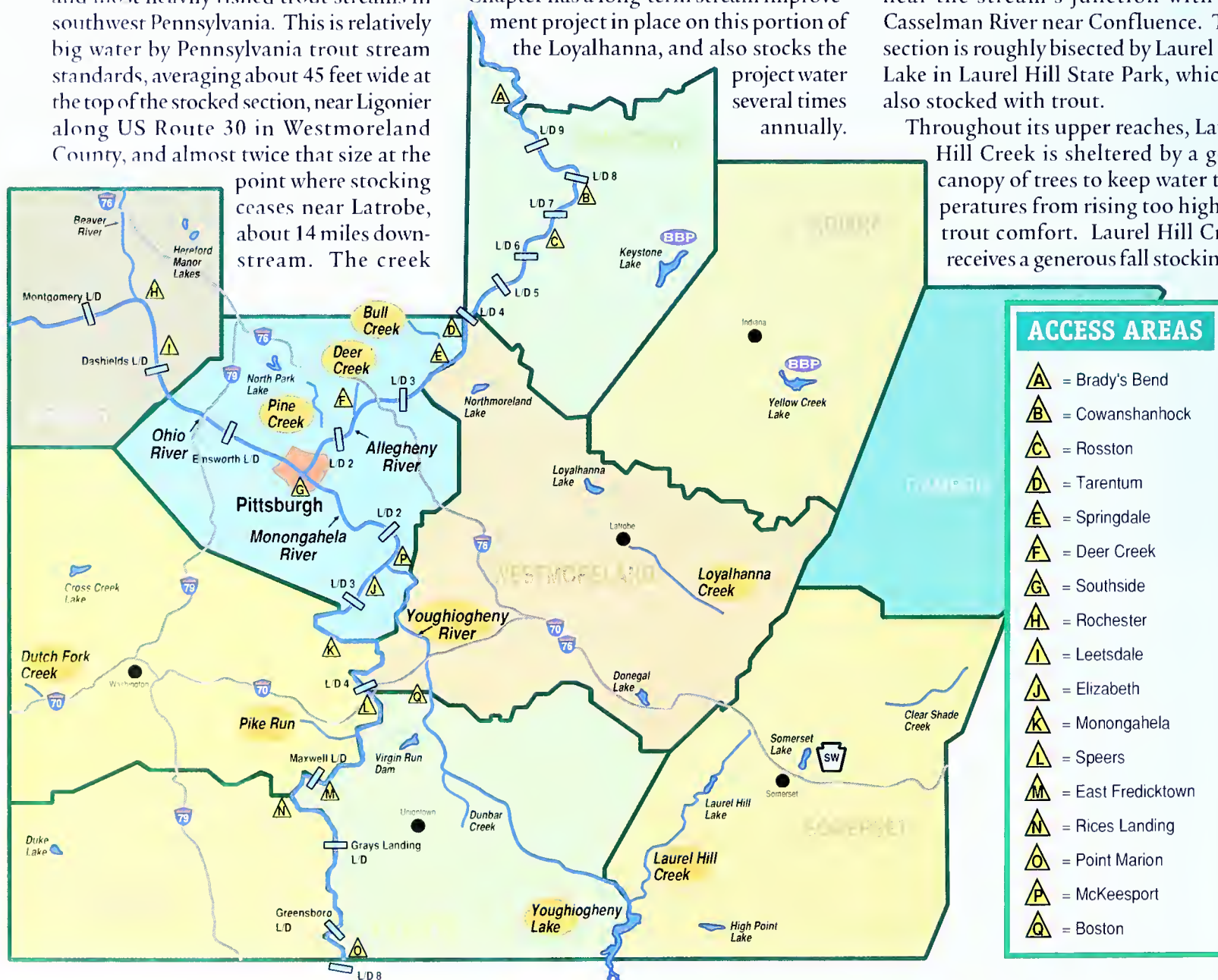
The only place receiving fall trout is the DHALO area, and no section of the Loyalhanna offers better fishing in early fall than the 1.5-mile DHALO project that begins at the Route 711 bridge at Ligonier and extends downstream to the bridge on State Route 2045. This section of the Loyalhanna is the project water of the active and dedicated volunteers of the Forbes Trail Chapter of Trout Unlimited. The Chapter has a long-term stream improvement project in place on this portion of the Loyalhanna, and also stocks the project water several times annually.

Forbes Trail TU President George Mellinger calls this section of the Loyalhanna "The greatest spot in the area." He cites the easy access afforded by the stream's nearness to Route 30 and the numerous sportmen's clubs and local residents who treasure the stream as a major recreational resource of the region.

If Loyalhanna Creek is the best loved of the trout waters of the high country to the east of Pittsburgh, it has a very close competitor in Laurel Hill Creek. This major Somerset County waterway has a little something for every angling taste. Flowing through the beautiful lands along the eastern edge of the Laurel Ridge, this is another of the major streams of southwest Pennsylvania.

The stocking of brown and rainbow trout on Laurel Hill Creek commences a few miles downstream from the Pennsylvania Turnpike about 8 miles west of the town of Somerset. Stocking continues downstream for almost 29 miles to a point near the stream's junction with the Casselman River near Confluence. This section is roughly bisected by Laurel Hill Lake in Laurel Hill State Park, which is also stocked with trout.

Throughout its upper reaches, Laurel Hill Creek is sheltered by a good canopy of trees to keep water temperatures from rising too high for trout comfort. Laurel Hill Creek receives a generous fall stocking of



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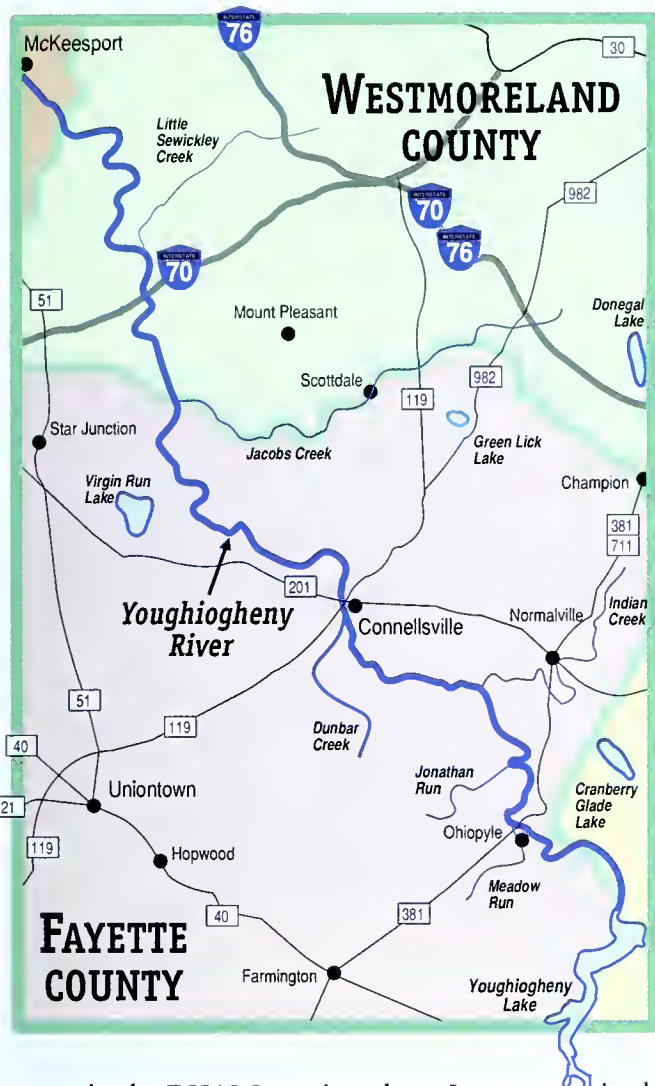
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“The Yough”

No discussion of the trout fishing opportunities within a relatively easy drive of Pittsburgh would be complete without talking about a fishery that is rapidly becoming one of the best in Pennsylvania: The Youghiogheny River, also known as “The Yough.” The best trout fishing is in the 28-mile section between the outflow of the Youghiogheny Reservoir near Confluence and the town of South Connellsville in Fayette County, south of Pittsburgh. This fishery is made possible by the cold bottom release from the Youghiogheny Reservoir that keeps the river in a temperature range agreeable to trout throughout this long section of river.

The Youghiogheny fishery is maintained for the most part with fingerling plants of approximately 165,000 brown and rainbow trout each year. The size of the river and the abundant habitat it offers allow these fish to reach a good size. Trout

in the 15-inch size class are not at all uncommon and a healthy number of 20-inch plus fish have been taken in recent years. Maintenance of this quality trout fishery depends greatly on suitable water quality from the Casselman River watershed.

Much of this section of the “Yough” flows through Ohiopyle State Park, and a bicycle path offers access to many of the remote sections of the river. The river can be fished either by wading or by canoe. However, the section near Ohiopyle is one of the most popular whitewater rafting destinations in the East, so use appropriate caution if you choose to float the river. Fishing for numbers of trout is actually better in the section above the famous whitewater section above Ohiopyle, according to Youghiogheny veterans.

This is a major Pennsylvania waterway, and its closeness to metropolitan Pittsburgh helps provide angling and recreational opportunities for hundreds of thousands of folks each year. The trout fishery in the Yough is still developing and is likely to keep getting better as the years go by. The Uniontown-based Chestnut Ridge Chapter of Trout Unlimited has taken a particular interest in the future of the river, sponsoring area-wide semi-

nars on river corridor planning and other related issues. With their continued dedication, the future of this amazing fishery is bright.

Strategies

With the first few cool nights of early September, the trout begin to emerge from their summer doldrums and their internal clocks tell them it’s time to start fattening up for the winter to come. And as the autumn deepens, this urge becomes even stronger.

At the same time, September and October stream levels are usually at their lowest points of the year. You will likely be looking at a lot of low, clear water and in some cases, some pretty spooky trout. Making a slow, careful approach to the stream when these conditions prevail is as important as making the right choice of lure, bait or fly. Wear clothes that match the natural colors of the stream setting, and leave the pink hats at home.

Key your selection of lure or fly to the prevailing food sources that the trout are using. For the fly angler, this means terrestrial dry flies like deer hair ants, beetles and grasshopper imitations. While not always necessary, on the more heavily fished waters like Loyalhanna and Laurel Hill creeks, long leaders of 9 to 12 feet tapered to at least 5X will fool more fish. Many of these waters also have decent autumn hatches of *Isonychia* mayflies that can be imitated with a Slate Drake in sizes 12 and 14 and *Isonychia* nymphs in size 12.

The spin fisher can cash in on the trout’s desire for more substantial meals this time of year by working small spinners and spoons past log jams and through the pocket water. A struggling minnow is always a welcome sight to a feeding trout, and these lures do a good job of imitating them. In low, clear water, give some thought to using spinners in muted shades of brass or even black. In higher flows, gold and silver will be your standbys. Just as the fly fisher must consider lighter leaders in the low flows of early autumn, the spinning angler is better served by lighter lines in the 4-pound-test range.

The bait angler can do well on these streams in the open-water sections where bait angling is permitted. Take a page from the fly fishers book and use terrestrial insects like grasshoppers and beetles on light-wire hooks with little or no weight. Drift these offerings as close to likely holding water as possible, and watch for the takes.



Success Story: Falling Spring and its Greenway

by Dianna K. Heim



You can hear it in his voice. When Mark Sturtevant talks about Falling Spring in central Franklin County, you know it is a place that invites admiration, even awe at times. Many of the flyfishermen who visit his outfitting shop in nearby Scotland share that wonder. "Some of the people just come by to see it, and say, 'hey, next time I'm in the area I'll definitely be back to fish. I've got to try this one.'"

For years, its cold, pure waters have drawn anglers from throughout the mid-Atlantic states. Even former President Jimmy Carter has stepped up to its banks in the hopes of a brook, brown or rainbow at the end of the line. It is one of Pennsylvania's last true wonders—a wild trout, limestone stream.

Fewer in number than the state's free-stone streams, limestone streams provide the pristine, clear waters where bigger, cannier trout thrive. They flow from deep caverns and subterranean reservoirs and through a bedrock of limestone. In this portion of the Cumberland Valley's geological floor, Falling Spring falls from



springs in the surrounding hillsides. That's how it earned its descriptive name.

Of its roughly four miles, the catch-and-release portion meanders for 2.4 miles between housing developments and farmland along Falling Spring Road. It can be fished year-round. Falling Spring also includes a Delayed-Harvest, Artificial-Lures-Only brown trout-stocked area of 1.1 miles, which travels into the heart of

downtown Chambersburg. Laid out in 1764 by Benjamin Chambers, the town grew up around the place where Chambers had built his log cabin and sawmill—the meeting of the Falling Spring and Conococheague Creek. In the 1800s, the spring sped the wheels of 23 mills.

But often the progress a resource creates is the very thing that spells its doom. By 1977, the stream's quality was decaying and the once self-sustaining population of trout was thinning. Several local sportsmen resuscitated portions of the stream and even received some federal conservation money. From 1977 to 1982, bank restoration and the addition of deflectors took place at Frey and Skelly meadows as well as at the land which would later be purchased from the Flohr family.

The project was given new life in 1988 when Washington, DC attorney Bill Horn and his friend Dennis La Bare, who had fished the stream for several years, sounded an alarm.

"Bill, I think, helped us realize what was happening in our own backyard," says Sam Small, a local real estate agent and

flyfisherman. Soon area anglers, the Falling Spring chapter of Trout Unlimited, land owners and area businesses formed the Falling Spring Greenway, Inc., a non-profit grass roots organization dedicated to reviving and protecting the Falling Spring.

They didn't have an easy task. To truly preserve the stream, it had to be shielded from sprawling development and damaging farming practices.

"Development was a concern, but more so the farming procedures on the banks. The erosion was incredible. We had 200 years of use to repair," recalls Jerry Armstrong, the Stream Improvement Coordinator for the Falling Spring TU chapter and a Greenway board member. The board had to create a buffer zone, restore the banks and educate the landowners and the public about stream management.

"We knew if something was going to happen, we had to concentrate on the community's interest in it as a greenway, as well as a fishermen's area," Small, who now serves as the Greenway's president, remembers. "And we were going to need money—lots of it."

Greenway's treasurer at the time, Chris

The Falling Spring Greenway, Inc., is a non-profit organization dedicated to reviving and protecting the Falling Spring through land purchases and stream improvement projects.

Hanneby, admits he was doubtful about raising the funds. Although they preferred to ask for easements, "we had to buy some land, in this case, because some of the parcels bordered very productive portions of the stream that were slated for development. My own philosophy was, a lot needs to be purchased, and I wasn't sure how that could happen."

By the early 1990s, landowners Mark and Frank Flohr had already subdivided one of the last open meadows that bordered the Spring. The nearly seven acres were parceled into five residential lots, tying up 1,100 feet along the Heritage trout portion. They agreed to sell it to the Greenway for approximately \$300,000.

Greenway members rolled up their collective sleeves, wrote letters to state and federal legislators and made phone calls. "The money was there, but we had to get it from the federal government, down to

the state and then down to us. It wasn't simple. These were funds that were pinned for other possibilities," Small says.

Initially, the Greenway was able to work out a loan agreement with the Conservation Fund of Arlington, VA to secure the property, according to Hanneby. This national organization operates revolving funds to purchase and preserve our natural resources.

After legislation was passed in 1992 to set aside state fishing license money for conservation projects, the Pennsylvania Fish and Boat Commission was able to purchase three of the Flohr lots from the Conservation Fund. The Greenway bought the other two and then turned the property over to the Fish and Boat Commission.

National Trout Unlimited received a \$70,000 grant from the National Fish and Wildlife Foundation in Washington, DC toward the land purchase and public education. An angler equipment company, Orvis, contributed \$5,000 toward the education part of the grant. They also helped design and construct information signs located at the Spring's access areas.

Money began to flow, in smaller increments, from other sources as well. "The beauty of it was there was no taxpayer money involved. It was all privately funded," Hanneby says in retrospect. But the Greenway wasn't done with its fundraising yet. When a local company, Mercersburg Tannery, was fined for industrial pollution by the state, the \$45,000 fine was originally given to the Western Pennsylvania Conservancy. A requirement of the state's fine was that it had to be used to protect the watershed of the Potomac River. Falling Spring is a part of that watershed, so the Greenway wrote more letters and the Conservancy turned over the money.



Success Story:

Falling Spring and its Greenway

By 1995, the Greenway was also able to purchase an additional 2.5 acres farther up the stream from Pauline Stull for less than \$20,000. Her late husband, Earl, was a farmer and although none of her family fished, she didn't want to see suburbia move in. "It was too pretty. I like to see the fellows out there with their fishing poles," the 81-year-old says. Greenway plans to erect a plaque in honor of Earl at Stull Meadow, which was also turned over to the Pennsylvania Fish and Boat Commission.

While some Greenway members were concentrating on the land purchases, others were preparing to be knee-deep in water, dirt and manure.

Before any new repair work was done, the board invited the Pennsylvania Fish and Boat Commission's Habitat Management personnel to analyze the stream. In spots, Falling Spring was 60 feet wide and three inches deep—far too wide and shallow for successful trout spawning. Using deflectors and rip rap (large limestone rock), volunteers narrowed and deepened sections of the stream. Small notes that thousands of the money raised went for this work alone.

In addition, for several years now, the Greenway members and the Falling Spring chapter of TU have tied cut Christmas trees,

collected from surrounding communities, to oak stakes in the stream. Gathering sediment from the water and banks, these natural deflectors help rebuild the banks, narrow the stream, increase velocity and as a result, trap more oxygen for the trout.

"We had a lot of silt built up that we had to move out," Armstrong says. "I guess the one really effective thing we've done, to make a difference, and this is true and being done across the entire nation, is the fencing from the cattle pastures, along with the watering areas and crossings. When you create a chance for recovery, the streams actually begin to heal themselves."

The TU chapter also adopted all of adjacent Falling Spring Road for litter pickup in the state Department of Transportation's Adopt-A-Highway program. Volunteers spent Saturdays planting 300 apple, basket willow, sycamore and dogwood trees and building bridges. Local Boy Scouts helped create a nature trail, named the Greenway Trail, with bird boxes and benches. "These folks were fantastic. The highlight for me, being involved in this whole thing, was getting the community involved," Smalls says. Membership in the Greenway has grown to about 1,500. Twelve directors meet annually now to oversee the future of this valuable asset.

Ten-year, renewable agreements for

easements have been worked out with several adjacent businesses. The companies became involved with the Pennsylvania Fish and Boat Commission's Adopt-a-Stream program. Under the program, they agree to monitor their runoff into the Spring. One company, T.B. Wood's Sons Co., placed booms in the stream to trap parking lot drainage. A manmade stream, which runs under the plant and into the Spring, is checked for temperature and acidity levels. The Commission is also firming up plans with remaining landowners for access, and the Greenway may buy some additional ground in the future.

With these purchases and pacts, flyfishermen will be able to approach the entire stream, Small notes with pride. "Now people come into this area and say to me 'you mean, I can fish the whole way?' Nobody expects to walk along a stream for four miles and fish anywhere. It doesn't happen too often with a lot of development around." Hanneby, a Baltimore native who could never find an accessible spot by foot to fish on Maryland's Eastern Shore, now lives beside Falling Spring. "To be able to fish on someone else's property—walk through, so to speak—is just great. We've got some very considerate landowners."

But flyfishermen aren't the only ones enjoying the Greenway. It is the epicenter of the Conococheague Audubon Society's annual Christmas Bird Count. The event tallies the migratory and year-round birds, which, like the trout, enjoy the stream's abundant sources of scuds (freshwater shrimp), mayflies and other insects. Nature lovers come to hike along the small, gurgling waterfalls and bright-green Elodea (waterweed) or catch a glimpse of a muskrat or kingfisher.

Thanks to help from the Falling Spring chapter of TU, the Delayed-Harvest section is stocked three times a year with about 300 fish, says Jan Caveney, Waterways Conservation Officer for Franklin County and eastern Fulton County.

"The stocked brown trout do amazingly well here. Very nice sizes. But the best thing about Falling Spring, in my opinion, has to be the Heritage (wild trout) area. The water quality is ideal," Caveney boasts with a smile. "And in the Heritage section, you'll find a variety of ages in the wild shasta rainbow. Anything from that past season's spawning to seven-, eight-year-old trout. Really excellent fish."

So what are the best spots? "Basically, it's good everywhere through the Heritage



Last year, Falling Spring's Delayed-Harvest section received 300 brown trout in three stockings.




Ten Ways You Can Help Save Falling Spring (and other Pennsylvania trout streams)

area. The fish are more difficult because they are wild," Sturtevant says. The best time of day to fish? "The time of day varies with the time of year. You're looking for various insect hatches, mostly mayflies, which indicate when the most active feeding is going to be in certain spots. Falling Spring has a lot of crustaceans available most of the year."

He notes that the Environmental Protection Agency once named Falling Spring as its benchmark for what a limestone creek's quality should be. "You have the ultimate richness here. The ultimate food source and water. What's really outstanding about this stream is that it's been under renovation for almost 20 years now and in that time, a lot of other streams in the state have gone in the opposite direction and are deteriorating quickly. Falling Spring is a gem."

To find Falling Spring and its Greenway, take Exit 6 from I-81. Go east on US Route 30 for the Heritage section along Falling Spring Road. Parking is available at Briar Lane, Springview Drive, a gravel farm lane off Skelly Meadow located between Edwards Avenue and Garman Drive, Edwards Avenue and Quarry Meadow off Quarry Road. For the stocked section, go west on Route 30. Parking is at Walker Road, off Plasterer Avenue, Coldbrook Avenue, North Seventh Street and Fifth Avenue.

To help the Greenway board fund land purchases and stream improvement projects, donations may be made to Falling Spring Greenway, Inc., P.O. Box 961, Chambersburg, PA 17201. 

Initiated by the Chesapeake Bay Foundation, these ideas have been adopted by the Greenway to preserve and protect the stream, its inhabitants and its banks. Although aimed at these streams' neighbors, they are recommended to all landowners. Every one of us contributes to the health of Pennsylvania's waterways.

1. Get involved. Every effort, every contribution large or small, counts when we join together.

2. Create a buffer zone. Buffer zones of 10 to 25 feet, natural and unmowed, with grasses, trees and shrubs, can control erosion, absorb harmful nutrients from runoff and provide shade to lower water temperature for improved fish habitat.

3. Care for your lawn cautiously. To prevent nutrient runoff, encourage the growth of trees and shrubs and use only organic material to improve your soil. Have your soil tested annually. Don't over-fertilize, and use the correct fertilizer for your conditions.

4. Don't remove aquatic plants. Elodea, watercress and other aquatic greenery is essential to the future of a limestone spring. They stabilize the stream's bottom and give good cover for trout, small fish and aquatic insects.

5. Control runoff from your yard. The fertilizers and other toxic chemicals we use on our yards can be carried by rainwater into streams. If rainwater is retained, you can help the stream's water quality, curb erosion, replenish the groundwater supply and lessen the need for fertilizers.

6. Practice sensible pest control. Instead of pesticides, try to attract "good"

bugs to eliminate "bad" garden bugs. Always follow pesticide directions, avoid using them if possible, and don't put them down near bare ground, near water or if you are expecting rain.

7. Maintain your septic system. A failed septic system can release untreated waste. Cut down on the grease and solids in your system by reducing the use of your garbage disposal. Be aware of where the system is when planting trees or shrubs or when you're using heavy equipment.

8. Dispose of household products carefully. Never drain cleaners, paints, preservatives or solvents into your kitchen sink or onto your land. Look for products with little, if any, toxic materials. Reuse turpentine and brush cleaners. Before you discard paint cans, stuff them with newspaper.

9. Contain chemical spills. Use dirt, kitty litter or other absorbent materials to soak up pesticide, oil or toxic product leaks on hard surfaces. Washing the area down could carry the spill to a nearby water source. Call a licensed hazardous waste contractor to dispose of this material legally.

10. Don't obstruct the flow of water. Placing rock dams in an effort to temporarily deepen water harms the stream by making it wide and shallow. It destroys gravel beds where trout lay their eggs. Silt deposited as a result of the dam can smother fish eggs, and insect and aquatic plant life. State law requires a permit from the Department of Environmental Protection to alter a stream channel's flow.—DKH.

Live Baits and Their Imitations for Catching Smallmouths

by Vic Attardo

Conditions dictate presentation—that's the rule I live by in fishing. You can cite any number of situations where this axiom holds true: Cold water equals slower presentations; clear water demands smaller baits, and so on and so on and so on.

When it comes to smallmouth bass in our Pennsylvania waterways, reading conditions is of prime importance. Last August I had a fishing date on the Juniata River with Al Kantz and John Peters, both of Richfield. We had met on the river the year before as these two veteran anglers were netting margined madtoms in the shallows near Port Royal. Madtoms are a species of small catfish and a devastating bait for big river bass. I was eager to learn Al and John's secrets.

As anyone who fishes the Susquehanna watershed knows, last year was almost a total washout. In the shank of the season, high, muddy water was the norm. I usually make 10 to 12 visits to the area each year, but I managed only two in '96. But a date is a date, so when our agreed meeting rolled around, out to the water we went. For the trip I brought my fly rods and bait outfits. Al (John couldn't make it) brought his bait stuff. It was a beautiful Saturday morning when we arrived on the river near Thompsontown, but, not unexpectedly, the water was high and dirty. We launched anyway.

Floating from the boat ramp we first came upon an overgrown shoal that slotted the river into a narrow chute. The shoal, creating a wide, circling current, looked like a perfect smallmouth spot. I cast my streamer on the fly rod and Al laid out his madtom. I knew I was in trouble when I couldn't see my fly through 18 inches of water.

In a few minutes Al had his first fish, a nice two-pounder. In about 30 minutes Al had released three decent bass and I hadn't had a strike. I put down the fly rod and grabbed the bait gear. After adding a wiggling three-inch catfish to the hook, I finally



nailed my first smallmouth in the next riffle. After that, it was pretty much a fish-by-fish swap between us.

In the evening, Al and I motored above the Thompsontown bridge into some shallow water less than three feet deep. By then the river had cleared slightly and in this thinner water I was able to use my fly rod with some success. Surprisingly, Al's live catfish didn't work as well because the rocks caused the weighted bait to hang up frequently. My fly just glided over the snags.

To continue the story, I made it back to the big J about two weeks later. On this trip, the water was clear though still a foot above its summer average. Fishing with Joe Bobiak of Quakertown we slew the smallmouth for a day-and-a-half with an assortment of impressionistic flies. Live bait was totally unnecessary. After that the J was unfishable for weeks.

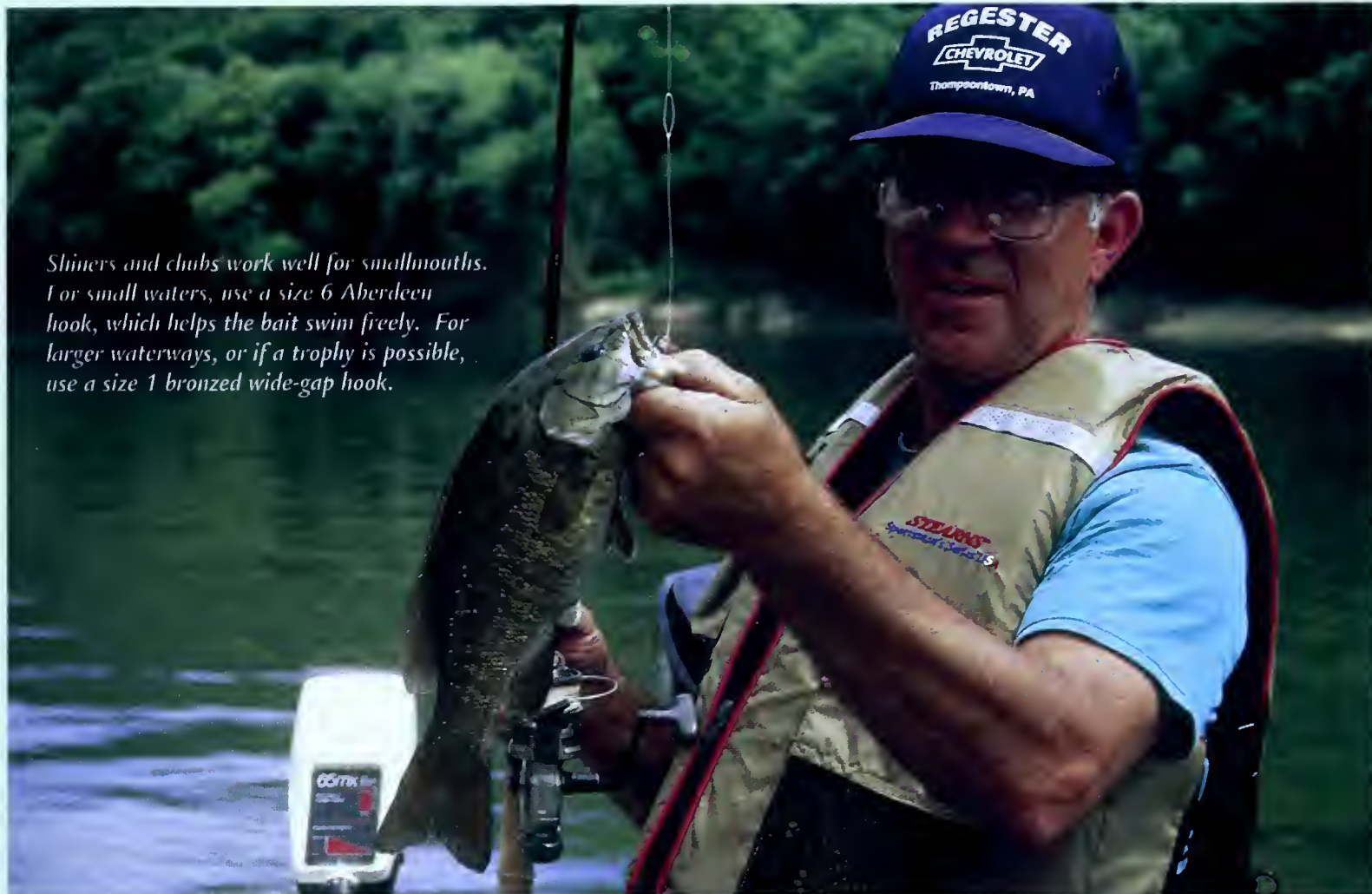
While this is just one example, I have faced similar scenarios throughout the state. With the water high and obtrusively off-color, fly or hardware fishing was a worthless endeavor, so I used live bait. But when the water cleared, impressionistic imitations were as good as bait, so why bother with the live stuff?

Over the years I've used and developed a number of patterns that mimic the best live baits for smallmouth. I use the real stuff when conditions dictate and the flies whenever I can. I'm not a fanatic to any one style of fishing. My aim is to catch fish, not satisfy someone else's standards of what fishing should be.

Madtoms

Since I mentioned madtoms, let's start with these. I was first introduced to the tiny catfish in Virginia where old-timers regularly use them to catch big smallmouths in their rivers and streams. Here in Pennsylvania it is relatively unknown, particularly on the east side of the state. Commission Area 7 Fisheries Manager Larry Jackson tells me there are at least two tiny catfish critters, the margined madtom and the western stonecat. The former lives in the Susquehanna and Delaware watersheds, and the latter thrives in the Allegheny. Another critter, the tadpole madtom, lives in the state's western





Shiners and chubs work well for smallmouths. For small waters, use a size 6 Aberdeen hook, which helps the bait swim freely. For larger waterways, or if a trophy is possible, use a size 1 bronzed wide-gap hook.

drainage. Even Larry says he can't tell them apart without looking up the details in a book.

The average madtom is only two to four inches long, though I have seen some larger. In color they run from dark-olive to black with tiny black eyes and pale fins. They may look innocuous, but these small cats carry a nasty toxin at the base of their pectoral fins. Though the fish has no injector system, when "stung" by a madtom the tip of your finger feels numb. Once when I was pricked, I tried to suck the bloodied wound with my mouth and a strange Novocaine-like sensation impregnated my gums. John Peters told me he had a numbing pain in one arm for several days when the tip of the fin became embedded in his finger. Since even the best stonecat fisherman gets pricked once in a while, be prepared for this unpleasant sensation.

Commission Warmwater Unit Leader Bob Lorantas researched some madtom literature and learned that the critters have a skin pore near the base of the spine and that the toxin can be extruded from this pore. Lorantas said it is likely that the toxin is rubbed from the skin surface to the point on the fin where it then comes in contact with the angler. Bob and I had a fine time speculating why this evolutionary adaptation came to be, since it's doubtful Mother Nature had 20th century fishermen in mind when she gave the catfish this capability. You'd think, that like many creatures carrying a poison to ward off predators, smallmouths would avoid the cats. Instead, smallies relish them.

But what little annoyance the cat causes the angler, it more than makes up for in landed smallmouth bass. I've seen hellgrammites and sculpins, both excellent smallmouth baits, go unmolested in off-color water, while nearly every cat tossed into the riffles drew a strike.

Kantz says madtoms are better than sculpins in dirty water because the cats wiggle violently on the hook. Sculpins, he notes, are a lot less active.

The simplest rig for stonecat fishing is a size 1 leadered bait

hook. Add a barrel swivel 12 to 18 inches above the hook to prevent line twist. Carefully hold the cat by pressing the fins back against the body or pinch the head between your thumb and index finger. Insert the hook through the lips and toss the rig into the smallmouth holding water. Few things are guaranteed in fishing, but this might be one.

Stonecats are not sold in bait shops. To catch your own, hunt in waters with a moderate current and flat rocks. Pick up the rocks and let the cats drift into a net, held behind you by a partner.

HOT TIP 1. Bob Lorantas says a good way to catch madtoms is to paint a tin can black, attach it to a dow stick and place the can in the water beside a flat rock. Lift the rock and any cat will swim into the can, thinking it's a safe retreat.

When conditions permit, I switch from live cats to Tar's Stoneface or Stoneface Junior flies. There is simply no piece of hardware that adequately mimics the shape and motion of the genuine catfish, but this fly does. Its wool head is trimmed to the size and shape of the natural, and its rabbit fur wing undulates like the real thing.

The Stoneface is rapidly becoming my favorite big bass fly, consistently garnering the largest bass of the day. But being a heavy fly, requiring a 7-weight or 8-weight rod to toss, I use the Stoneface only during the first and last hour of the day, when the natural creatures are most active. For all-day fishing with a 5- or 6-weight rod, I substitute Tar's Stoneface Junior, which replaces the water-heavy rabbit fur with a collar of deer body hair. The wiggling action is not as good on the Stoneface Junior, but it still fools its share of big bass.

Crayfish

I think smallmouths feel the same way about crayfish as I do about Hershey bars. We can't get enough of them.



Clouser Crayfish



Pennsylvania Sculpin

A couple of seasons ago I kept a half-dozen crayfish in an aquarium where a few managed to live about two years. At one point, I even had scads of crayfish babies crawling on the wet glass. During the adults' captured lives I witnessed them molt and I noted the color of their newly set soft shells. It was a mottled dark-gray and green. The underside was a pale gray with a bluish-olive tint. The cray's claws were a transparent gray and the tips a pale orange.

Ever since seeing the soft shell stage I've tied many of my crayfish imitations with a gray shell and a light underside. While green-backed imitations are good, the grays, in clear water, are hotter than Hershey bars.

In my aquarium I watched a female carry her eggs under a tightly curled telson. She looked so vulnerable I made a green-backed fly with a ball of orange dubbing beneath the tail. It's a real winner.

I fish live crawfish hooked in the tail. A hook with a weed guard, such as the Eagle Claw 249W or 449W, is a real plus. I spice my line with a few splitshot and crawl the craw slowly across the bottom.

Bob Clouser has a Furry Foam Crayfish, which I love to build and use. It's a beautiful imitation, but I also make crayfish with deer hair bodies ala Will Ryan and chenille bodies ala me.

HOT TIP 2. The simplest crayfish imitations you can fashion are crayfish-colored Woolly Buggers. I use two colors of chenille, applying a short strip of the second color over the top of the hook to mimic the shell. My favorite color combinations are orange/black, orange/olive, and cream/gray. For the tail, use either black, olive or burnt-orange marabou for the appropriate patterns and palmer the body with grizzly or dun hackle.

In water that's slightly dingy, I use my Brown Crayfish. This fly incorporates a glass rattle and lead eyes tied on the top of the hook. The body is a green/gold mylar tubing. After tying the tubing down at the rear of the hook, insert the rattle into the cavity. Then tie down the other end of the tubing. Coat the body with Flexament.

Over the body I flair a hank of orange and brown bucktail.



Tar's Drab Darter

Extend the base of the hair out over the eye of the hook in a fan shape, like the crayfish's tail. The rattling Brown Crayfish gets cloudy water smallmouth onto the dance floor.

Darters, sculpins

I'm sorry, I just can't fish with live darters or sculpins. I know it's silly, but with their pouty little lips and big eyes they look so soft and vulnerable. Call me crazy, but that's how it is. Yet, while I have compunctions about using members of the Etheostomas and Cottidae families as bait, I know smallmouth bass relish them.

Darters and sculpins are easy targets for smallies—they may move quickly, but they don't move far. I've trapped both fish in open water with an aquarium net, something downright impossible with regular minnows.

A lot of fishermen see the brown and tan tessellated darter in their home waters and think it's a sculpin. On the limestone streams I fish, tessellated darters are more common than their flatter cousins. Is this mis-identification a problem? It can be when choosing the size of your fly. All of my darters are made on size 6, 2X hooks, while I build sculpins up to size 2.

To imitate both species I rely on three patterns, Tar's Drab Darter, Tar's Tessellated Darter and the Pennsylvania Sculpin. All three are part of the Big Head Minnow series made with dubbed or chunked lamb's wool.

HOT TIP 3. Big heads on streamer patterns displace more water and look more realistic than narrow feather-wing streamers. Lamb's wool fuzzes as the fly is used and the material also traps air bubbles, making the heads even more lifelike.

To make darter flies I've worked out a winging technique different from some of the more common methods. It's my answer to the problem of holding down the wing while tying Matuka-style streamers. To begin the fly, select either a mottled grouse feather for the tessellated version or an olive pheasant feather for the drab version. The pheasant feather comes from the wing near the shoulder joint; the English partridge feather is taken from the base of the wing. I've seen both of these round-edge feathers referred to as "fan feathers."

The first step in making the fly is weighting the hook shank with lead wraps or a non-toxic substitute. For the tail, tie in a matched pair of fan feathers, placing each stem along the hook shank. The length of the tail is about one-quarter the length of the hook shank. Now trim the butt of the feathers, but don't throw them away. Next, tie in a three-inch length of fine gold wire and secure at the tail point. Dub the shank with olive/brown antron dubbing, creating a tapered minnow body—thin in the back, heavier in the front. Stop at least two eye lengths behind the eye of the hook.

Next, take one of the cut fan feathers and lay it concave-side up over the dubbed body with the stem resting flat on the dubbing. The end of the feather's fibers mark the spot where they should meet the tail. Now, bind down the fibers and the stem with the gold wire and tie off near the head. Use a dubbing needle (or a dentist's pick) to gently pull the fibers out from underneath the wire. You'll see they sweep back beautifully just like a fish's fin. This, I believe, makes a more realistic wing than a wide saddle feather tied Matuka style and it's a bit easier to do. To finish the fly, dub or chunk the lamb's wool as a broad head.

Hellgrammites

Here's a live bait I love to use on small and moderate-size streams. The reason I limit the real thing to more manageable waters is because I find hellgrammites difficult to cast long distances while wading. In a narrow stream I simply play out the line from my reel. A micro splitshot about 8 inches above the hook gives me all the weight I need.

Hellgrammites are the larva of the dobson fly, a big bruising insect you don't want to meet at night—the male's jaws are like a pair of twisted scissors. They're enough to make a scorpion shudder. Both stages of the dobson fly are excellent smallmouth bait, but only the hellgrammite is really available to the angler. One night camping on the Delaware with my granddaughter Ashley, a four-inch female dobson landed on our tent. Naturally I added a hook and tossed it into the river. It barely hit the water when I got a bass.

My barber, Galen Beard, (honestly, his name is Beard) taught me a thing or two about live hellgrammite fishing. He told me to pinch off the rear pincers so the bugs can't cling to the rocks, and when a couple of fish have chowed down on the bait, turn the bug's soft bodies inside out. I've done both and Beardy is right. Hellgrammite scent is so powerful, I once had a hook with just a dab of body juice left on it and a stream bass still went after it.

HOT TIP 4. To fish a hellgrammite, use a thin-wire, long-shank Aberdeen hook. The Aberdeen won't mangle the hellgrammite and the bass is less likely to swallow the long shank. As with all live baits, if the fish swallows your offering, don't attempt to remove the hook. Clip the line and set it free.

Hellgrammites are easily imitated by Woolly Buggers. I've also seen a few more exacting imitations tied with foam and rubber, but they don't impress me as being as lifelike as those fashioned with marabou tails. After years of experimenting with different color chenilles, I have finally (at least for now) settled on a fly that uses a variegated brown and black chenille. Variegated—that is, two-tone chenille—is becoming easier to obtain. (In Pennsylvania you can find it at Cold Spring Anglers in Carlisle and at Flyfisher's Paradise in State College). Tie the fly with a dark-marabou tail, variegated chenille, palmered grizzly or dun hackle, a few stands of Red Krystal flash at the collar, and use a bead head. This personification is perfect.

I fished with Eric Nelson on the Delaware last September and the bass really went for this fly when they snubbed others. Smallmouths in the Delaware watershed have a real taste for hellgrammites. For shallow streams in the watershed, I make the fly without a bead head.

Chubs, minnows, etc.

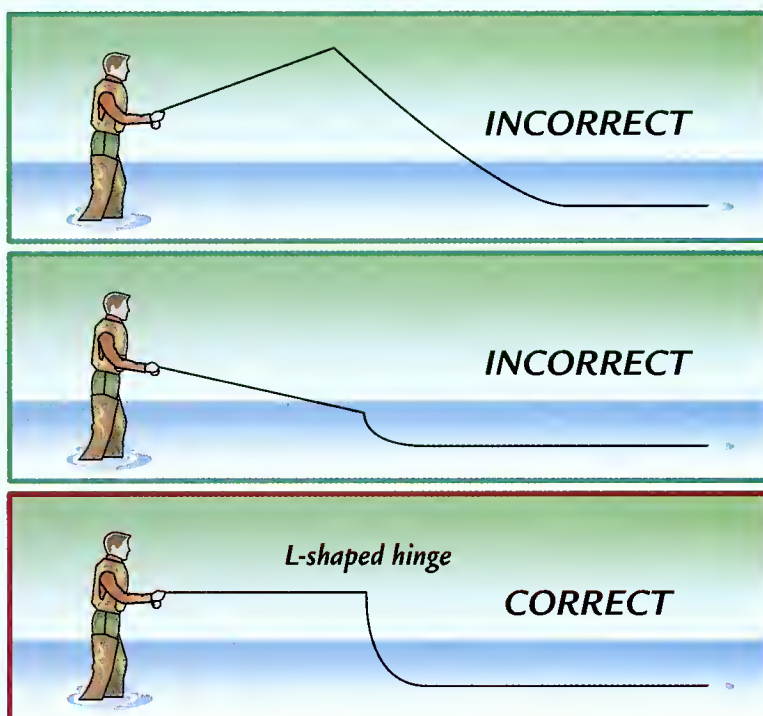
I use shiners, chubs and all kinds of minnows for smallmouths. In small streams, size 6 Aberdeen hooks help the bait swim freely. In larger waters, especially if a trophy is a possibility, I use a bronzed wide-gap size 1 hook.

All of these baits can be imitated with the Heavy Metal Minnow, which I've described a number of times, Ed Shenk's White Minnow and Tar's Goat Hair Minnow. The latest incarnation of the Goat Hair has a bead head for deepwater fishing. If goat underfur is unavailable, try Angora Goat-Baby Seal Substitute, natural color. Each of the minnow imitations is a terrific fly and I wouldn't fish smallmouths without them.



The Hinge

When fishing down and across with the fly rod using streamers and other subsurface flies, it's important to maintain some controlled slack at the rod tip. I call this slack "the hinge."



Anglers approach streamer fishing in one of two ways: Either they point the rod down at the water, having the fly line emanate from the last guide in nearly a straight line, or they hold the rod tip at some 45-degree angle, thus producing a large amount of slack between the tip and the water surface.

Instead of those approaches, I suggest keeping the tip a tad above or below the horizontal plane of the water, depending on how deep you are wading. Allow the line to fall in a gentle "L" from the rod, creating a short piece of slack between the rod tip and the surface.

When a bass hits, it will have this slack line to turn and run with before feeling any resistance. The hinge allows the bass to travel a short distance with the fly while firmly taking the hook. Without this controlled slack, the bass is more inclined to drop the fly.

When stripping the line, the hinge reappears beneath the rod tip if you hold the rod at the correct plane.

As the smallmouth strikes, allow the slack to straighten, and then set the hook by lifting the rod. At the same time pull down on the line with the line hand. This one-two punch produces solid hook-ups and should lessen the number of missed streamer strikes.—VA.

Some
Pennsylvania
Streams Are a

HELLBENDER'S HEAVEN

by Karl Blankenship



They come out only at night. And they look like giant, 2-foot long, flattened newts. Imagine pulling one up on the end of a fishing line on a dim, moonlit night. “You can imagine why they get the name *hellbenders*,” says Andrew Shiels, Fish and Boat Commission Nongame and Endangered Species Unit Leader.

Hellbenders are the largest salamanders found in Pennsylvania, and one of the largest found anywhere. They can reach 29 inches long, but more typically measure between 10 and 20 inches, and can weigh about 5 pounds.

They are never destined for wildlife posters that feature warm and fuzzy animals peering softly. The hellbender’s skin is thick and wrinkled, and its flattened

appearance leads many to describe it as something that seems to have been run over by a car. One field guide calls the hellbender “grotesque,” “exceedingly slimy” and something that looks “more like bad dreams than live animals.”

Despite the name, hellbenders have good taste when it comes to habitat, choosing clean, clear, flowing rivers and streams with lots of large rocks to hide under. Hellbenders historically were found over much of the eastern United States, but Pennsylvania remains one of the best places for finding them. In fact, its scientific name, *Cryptobranchus alleganiensis*, implies that this region has long been something of a hellbender hotspot. Occasionally caught by night fishermen seeking catfish in the

Allegheny River, they also have the nickname “Allegheny alligators.”

Habitat concerns

But even in Pennsylvania, home for the hellbender has been greatly restricted in the past century. They were once distributed through much of the Susquehanna and Ohio drainages, but many waterways have become too polluted to support the giant salamander; rocks and hiding areas in other streams have become filled with silt from land run-off; while other habitat has been eliminated by dams and impoundments.

Because they are nocturnal, live under rocks, and their dark gray-brown skin blends with the stream bottom, they are

photo: Joe McDonald

rarely seen by fishermen, and have never been well-studied in the past. "The average person doesn't come in contact with them," Shields says, "so you can't rely on anecdotal reports to give you good information about hellbenders. You have to go out and find them yourself, and you have to know what to look for."

So for the last few years, the Fish & Boat Commission has supported the efforts of Dr. Arthur Hulse, a biology professor at Indiana University of Pennsylvania, who systematically wades rivers and streams, flipping rocks and looking for hellbenders. The research is financed by the Wild Resource Conservation Fund. The fund, supported through voluntary checkoffs on the state income tax form and the sale of special "Conserve Wild Resources" license plates, is the state's primary means of supporting nongame wildlife research.

Ultimately, the hope is to piece together a record of where hellbenders are found today and to determine their status in the state. While not considered endangered, the animal has clearly declined in abundance. "This is an animal that is vulnerable," Hulse says, "and if proper management isn't carried out, it may indeed become threatened."

Hulse has found a lot of evidence that hellbenders were once more widespread in the state. Often, that evidence is a population in headwater areas of a stream that is cut off from other hellbenders by polluted water. "I assume that the area downstream would have supported populations at some time," Hulse explains, "because they had to have come from somewhere." In addition, archaeological digs at Indian sites along the Ohio River frequently uncover hellbender remains. "They were probably a part of their diet," Hulse says.

Scientists began noting their decline in the early part of this century, as the quality of many rivers and streams declined, though it is not clear whether the pollution kills the hellbenders directly or wipes out their supply of crayfish and other food.

Still a mystery

In many respects, the animal Hulse is looking for is still a mystery. It's even uncertain how long they live. In captivity, one has survived for up to 29 years, but that individual was already several years old when captured. "The answer is that nobody knows how long they live," Hulse says. "My thinking is that we're talking about very long-lived animals here. I wouldn't be surprised to find that we have animals that have a life expectancy of 50 or more years."

Their rate of reproduction is also a mystery. Hulse says it is rare to find a small, young hellbender. And he has never found hellbender larvae, though he has found larvae of a similar species, the mudpuppy.

Hulse estimates that only about a half-dozen people actively study the hellbender in the United States.

To understand better what the long-term outlook for hellbenders in different parts of the state may be, Hulse and his graduate students are closely monitoring three populations. In one Westmoreland County stream, hellbenders have been restricted only to one or two miles of stream; headwater areas are too small for the salamander, and acid mine drainage downstream makes the water too polluted. "It has been hammered," Hulse says. "We have a stream that has been massively affected for a long time, and what we have is a small, isolated population." Too small, perhaps, to survive. "The data that I'm seeing," Hulse says, "suggests an aging, declining population."

Hulse is also keeping tabs on the population of a creek in Indiana County, which also has an isolated hellbender population. But in this case, the population is larger than that of the Westmoreland County stream and covers a larger area.

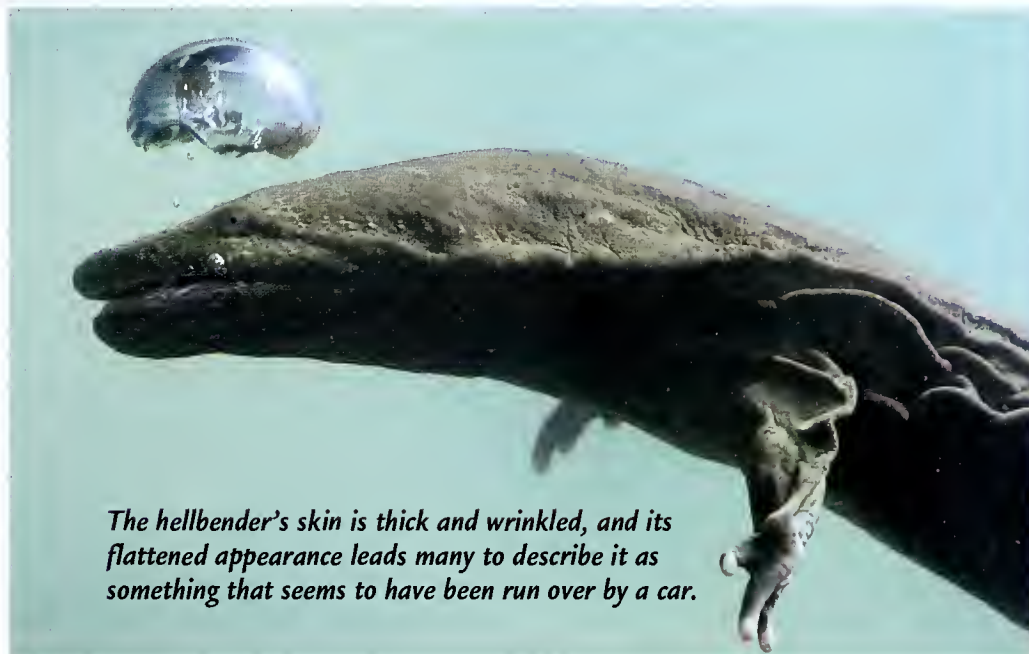
Finally, he is closely examining a creek in the Allegheny National Forest. "We can think of this waterway as about as close as we are going to get to what the habitat was like for hellbenders before the area was colonized," Hulse says. Hellbenders in that creek are plentiful. Hulse estimates there are about 90 pounds of hellbenders per acre. "That's a lot of animal, especially for an organism that is one of the top carnivores," he says. Put another way,

that works out to about one hellbender for every four linear feet of stream.

By comparing the well-being of those populations, Hulse ultimately may be able to make judgments about how other hellbender populations will fare. But, he notes, the hellbenders have one important factor in their favor: The types of habitat that they prefer are also those that support the types of fish habitat people want to protect.

"When I find hellbenders, I find a good stream that for the most part is as close to its original condition as we can find in this state," Hulse says. "They all support good trout fisheries; a lot of them support very nice smallmouth bass fisheries. So where the hellbenders are, you're talking about streams that are of very good quality. As they start to decline, they can indicate the declines in other parts of the community."

But, addressing one concern sometimes raised by fishermen, Hulse said hellbenders do not eat trout. He has never seen remains of a trout in the stomach of a hellbender. They seem to prefer crayfish, worms, crustaceans and insects. "If anyone sees or catches one," Hulse says, "they should feel that they've been fortunate to have seen such a unique animal, and release it unmolested." □



The hellbender's skin is thick and wrinkled, and its flattened appearance leads many to describe it as something that seems to have been run over by a car.



"Look! There they are again," said a puzzled Dave Hornstein, pointing to a mass of bottom-hugging marks on the LCD depthfinder.

"Definitely not big fish," I noted. "Look somewhat like a baitfish school."

We had been working the deep edge of a midlake hump in search of walleyes when we drifted over a pod of something on the bottom. Before they moved off the screen, Hornstein received two hits on his jig-and-minnow but had not managed to hook anything.

Now we were back over them again. "Missed another one!" Hornstein complained. "They are not walleyes. They're smacking the minnow good, but not holding onto it."

"Crappies?" I responded with a question, just as I rolled a fish with a half-ounce blade bait but failed to connect.

"Could be," said Hornstein. "But it's hard to believe I would miss three solid strikes from crappies with a jig-and-minnow."

On my next lure lift I felt another tug. I continued sweeping the rod upward into a hookset. Something danced on the end of the line as I reeled in.

"Bluegill!" Hornstein said as I swung the fish aboard. "A big bluegill!"

"From 35 feet of water," I added, removing one tine of a large treble hook from the tiny lips of the 'gill.

As I switched to a smaller Cicada blade bait, Hornstein grabbed another rod he had rigged for deepwater crappies. He baited the Aberdeen hooks with minnows and dropped the rig to the bottom. In 10 or 15 minutes we had caught enough fat bluegills to make a family fish fry.

Not bad for November, I thought to myself, and just another demonstration of the diverse locations of fall bluegills.

Fish for all seasons

Here's a little experiment. Ask a group of panfish anglers to talk about their favorite time for bluegills. Most will speak glowingly about springtime fishing when the sunfish are in the shallows for the spawn. Others will address summertime fishing around weedbeds



Small jig and float

photos-Dar

with poppers. Still others would stake claim to ice fishing as their favorite time for 'gills.

But how many mentioned fall? Probably no one. If they know about the fantastic fall bluegill bite, no one is talking. It's a niche many panfish anglers don't like to share. Yet, during the fall there's plenty of room on the water for fishermen, and there are plenty of hungry bluegills.

Surprisingly, fall bluegills can be taken over a range of depths and habitats. They may be caught from shore in some lakes, and in other waterways a boat is definitely required to reach them. They may be relating to wood, rocks, or the remaining vegetation. It just depends on what a particular body of water has to offer.

Different situations

Permit me to illustrate the above points with examples. First, let's discuss that November incident of catching bluegills in 35 feet of water, which took place on Conneaut Lake in Crawford County.

Conneaut is a 925-acre natural lake with multiple basins separated by underwater ridges and humps; maximum depths in the basins range from 40 to 70 feet. During

for the handful of panfish anglers still at it. As water temperature continues to drop into early October, most bluegills abandon the weed edge. They form mega-schools on rises (small humps) in bay areas or on points in depths from 20 to 25 feet.

By mid-October trying to find bluegills in the shallows of this natural lake is like searching for hens' teeth. Very few anglers are seeking them at this point, figuring the fish aren't feeding.

That's what I used to think, too. But more than a decade ago, I stumbled into concentrations of bluegills on hard bottoms in depths from 30 to almost 40 feet. Since then I have discovered that 'gills remain very active and catchable in deep water until around the first of December.

About 25 miles down the road in Mercer County is 1,600-acre Lake Wilhelm. A very different waterway from Conneaut, Wilhelm is a flatland reservoir with a maximum depth of 28 feet. The uppermost portion of the reservoir is very shallow and completely weed-choked during the summer.

I spend most of my time fishing the lower portion of the lake by boat. By mid-October, I generally find bluegills have moved from the shallows to stumps and brushpiles on the deep flats or near the main creek channel; depth locations range from 10 to around 18 feet.

However, it's a different story on the upper portion of the reservoir. During the summer, thick vegetation hampers fishing effort. But as the water cools, the weeds begin to die and the water loses its pea-green stain. Open water channels and pockets expand

Jigs with heads of $\frac{1}{64}$ -ounce or $\frac{1}{32}$ -ounce are standard.

as weeds recede. With decaying vegetation no longer a suitable habitat, bluegills move into open water. They concentrate in the winding creek channel, which averages a couple of feet deeper than the surrounding flats.

Starting about the first of October, anglers in quest of bluegills line the causeway that crosses the upper portion of Wilhelm. On a good day some fishermen take home a five-gallon bucket of plump 'gills and pumpkinseeds. Bluegills can be caught from the shore until the lake ices over.

How's that for opposites in the late fall? One lake where bluegills are found in 35-foot depths far from the shallows, and another where 'gills are within casting distance of the bank.

You may have picked up on one common thread: Late-fall bluegills move to deeper water. Now, deep water is relative to the environment. In Conneaut the fish are able to move onto a very deep, hard bottom; in the upper end of Wilhelm the bluegills simply shift to the channel, which is the deepest water immediately available.

Small spinners can also be effective.

the summer, bluegills are found in and around shallow weedbeds, as well as in open water to depths of about 25 feet.

When water temperature begins to drop about the first of September, bluegills concentrate along the outside edge of the weedbeds. Catches can be impressive

Both movements are likely related to a sustainable food supply.

Bluegills in your area

You can apply that insight to ponds, lakes and reservoirs in your area. I cannot predict exactly when bluegills move or how deep they go in all waters around the state. However, I do know from fishing many different lakes across the Commonwealth that the “deeper water than summer” theory usually holds true. I have taken big bluegills from rocky bluffs on Raystown and Kinzua reservoirs in the late fall, as opposed to the shallower back end of bays. On shallower reservoirs, the bridge area is often productive; that’s usually the spot where the old creek channel passes through the causeway.

Lures and baits

Don’t think your lake has big bluegills? Try fishing during the fall. Chances are the fish caught will be some of the largest of the year. That’s certainly what I have found.

At times the ‘gills can be ravenous. These panfish, like other species, are building up reserves for winter. In some lakes they are eating whatever they can get in their mouth. Let’s consider some lure and bait options, but keep in mind a presentation used in 6 feet of water will not be effective in 30 feet.

When fishing from the bank, it’s hard to beat a tiny jig suspended below a float. A $\frac{3}{4}$ -inch soft-plastic tube or split-tail on a $\frac{1}{64}$ -ounce or $\frac{1}{32}$ -ounce head is standard. Hair jigs catch fish, too, as do teardrop ice jigs. Tipping any of these with a maggot, waxworm or mealworm draws more strikes; I’m particularly fond of using mealworms in the fall.

For a bobber, I prefer long-stem floats because they are more sensitive to bites. Distance of the cast as well as the depth at which bluegills are feeding determine whether a fixed or slip float should be used. Fixed (non-sliding) floats are fine if casting close to shore and if the fish are no deeper than four feet. However, if you need to reach out farther from shore or need to suspend the jig deeper, a slip (sliding) float is the preferred choice. Balance the float by adding splitshot to the line so only the top of the stem is visible; this creates the most sensitive setting.

Often bluegills are aggressive enough to be taken on larger lures. I sometimes use a heavier casting bubble with a $\frac{1}{16}$ -ounce tube jig; this is retrieved very slowly. Small spinners can also be effective.

Autumn BLUES

Tiny minnows take bluegills. Use a $\frac{3}{8}$ -ounce or $\frac{1}{2}$ -ounce bell sinker with two size 8 or 10 long-shank Aberdeen hooks.



Deep-water tactics

Before you can catch deepwater bluegills, you have to find them. Without a good depthfinder and an understanding of bottom structure, your time would be better spent targeting lake situations where the ‘gills are bunched up only a cast from shore.

However, if you like to probe the dark depths, keep the following in mind. In deep water, bluegills are object-oriented, in much the same way as their black

A teardrop tipped with a maggot is a good bluegill bait.



bass cousins. Actually, during fall excursions, I often find bluegills, walleyes and smallmouth bass schools holding on similar structures. This might include rock outcroppings, rock ledges, isolated snags (logs, branches, sunken boat) along a breakline, or a bottom transition zone from firm material to soft silt.

When bluegills are 25 to 40 feet deep, a micro jig dangling below a float is not going to cut it. At this depth, a vertical straight-down presentation is the most effective approach.

Jigs are always a good choice for fishing vertically. However, finding a deepwater leadhead for bluegills can be a tough assignment. The hook needs to be small, no larger than a size

8. But to get down to 30 feet, the jig needs some weight. Unfortunately, heavier heads and small hooks usually do not go together in commercial jigs. Fortunately, I came across the type of jighead needed at a sport show a few seasons back. When I run out of these compact heads with a small hook, I’ll be searching again. Slip a small tube or Fuzz-E-Grub body on the jighead, and tip it with a mealworm or a small fathead minnow.

Minnows for bluegills? Yes! I rarely catch bluegills with minnows during the summer, but fall is a different story. Small minnows are so effective in the deeper water that my buddy uses a modified Kentucky Lake crappie rig to fish fatheads for ‘gills. The rig consists of a $\frac{3}{8}$ -ounce or $\frac{1}{2}$ -ounce bell sinker on the end of the line with two size 8 or 10 long-shank Aberdeen hooks spaced 8 to 10 inches above the weight. The heavy sinker drags the bottom, keeping the line taut, while the angler slowly motors around the structure on the electric motor.

My favorite deepwater bluegill lure is a small blade bait. The $\frac{1}{8}$ -ounce and $\frac{1}{4}$ -ounce Cicadas from Reef Runner are perfect for bluegills; most other blades have hooks that are too large. To fish this lure, free-line it to the bottom, engage the reel, and take up slack line so the blade is sitting on the bottom with the rod tip about 12 inches off the water’s surface. Next, slowly lift the blade off the bottom by raising the rod tip 12 to 18 inches.

Then set the blade back down. Not only are bluegills attracted to this lure’s action, but so are all species that love to dine on struggling minnows.

Whether fishing from the boat or from shore, don’t overlook autumn bluegills.

SMART

Angler's Notebook

by Carl Richardson

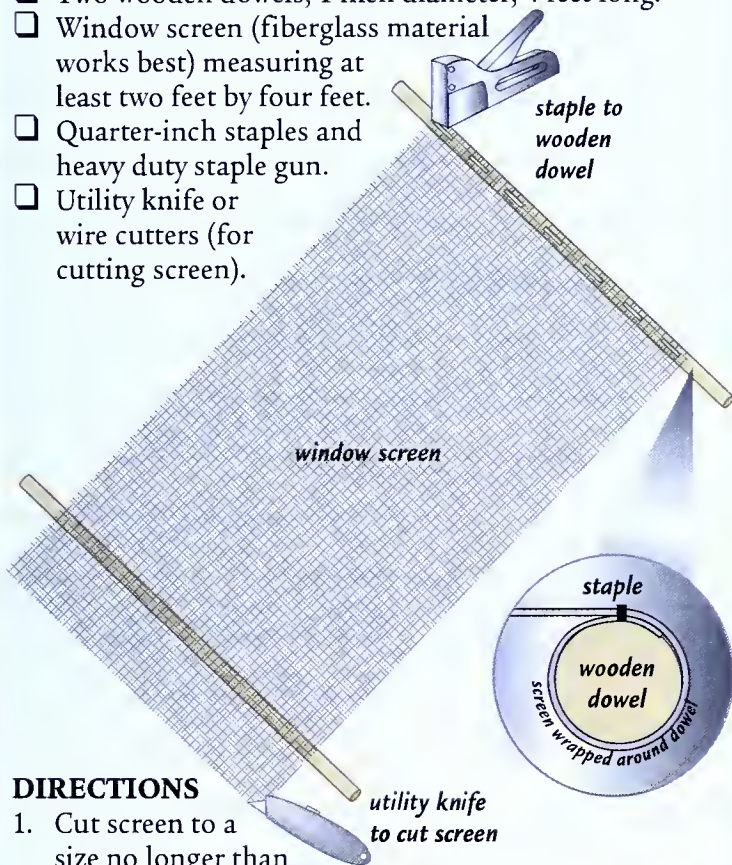
illustrated by Ted Walke

Critter Collectors

Kick Seine

Materials needed:

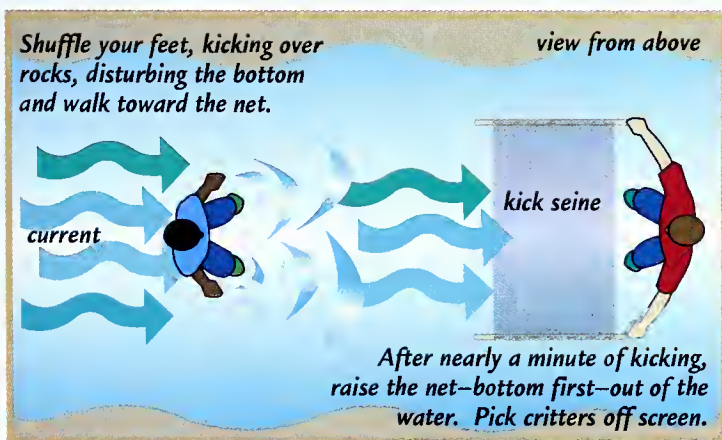
- ☐ Two wooden dowels, 1 inch diameter, 4 feet long.
- ☐ Window screen (fiberglass material works best) measuring at least two feet by four feet.
- ☐ Quarter-inch staples and heavy duty staple gun.
- ☐ Utility knife or wire cutters (for cutting screen).



DIRECTIONS

1. Cut screen to a size no longer than four feet. Fish and Boat Commission regulations limit the length of nets and seines to four feet. Seines larger than four feet require a special scientific collector permit.
2. Lay dowels along shorter edge of screen, lining up the bottom of screen with the bottom of dowels.
3. Wrap screen around dowel, one complete wrap. Staple screen to dowel rod, placing staples every six inches or so.
4. Repeat process on other dowel.

To use a kick seine: one or two persons



Soda Bottle Trap

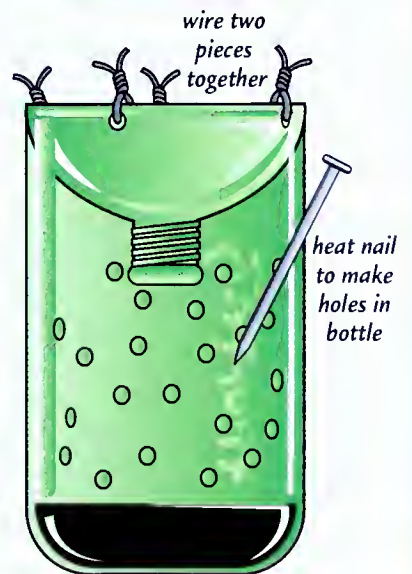
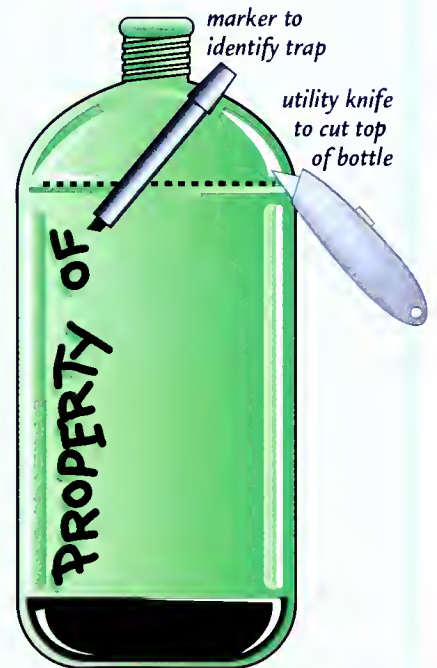
Materials needed:

- ☐ Two- or three-liter soda bottle. Use bottles that have an opening of less than 1 inch. Regulations prohibit traps with larger openings.

- ☐ Picture frame hanging wire (or other suitable rigid 18-gauge or smaller wire).
- ☐ Large nail (10 penny or larger).
- ☐ Wire cutters.
- ☐ Utility knife.
- ☐ Permanent marker.

DIRECTIONS

1. Using the permanent marker, write your name, address and telephone number on the outside of the bottle. Pennsylvania fishing regulations require that unattended traps be identified with this information.
2. Cut the top from the bottle just where the bottle begins to taper toward the opening.
3. Invert the bottle top and place it inside of the remaining portion of the bottle.
4. Heat the nail and make four holes in the two pieces. The wires used to hold the two pieces together will go through these holes.
5. Cut four pieces of wire, each about two inches long.
6. Wire the two pieces together and cut off excess wire. Make sure to leave at least one piece longer. This will be the one you use to open the trap.
7. Heat the nail and make several holes in the body of the trap.



To use the soda bottle trap:

Place large metal washers or small stones inside the trap for weight. Traps are most effective when placed in shallows of ponds or lakes or the slower-moving portions of a river or stream. Trap can also be baited with bread. Be careful when using trap in early spring. Breeding or migrating salamanders may find their way into these traps. One salamander will attract others and soon you will have a bottle full of dead salamanders.

NOTE: Pennsylvania Fish and Boat Commission regulations limit the number of baitfish and/or aquatic invertebrates (fishbait) you can possess daily to 50.

The Emergent Tup's Indispensable

Nowadays, new fly patterns tend to be designed for specific purposes—to represent a particular spinner, for example, or a special dun, nymph or pupa. Such a pattern is aimed at filling a special niche and is rarely adaptable to other uses. It isn't likely a caddis pupa pattern could be adapted to a streamer pattern. Nor could Joe's Last Hope streamer be readily converted to a spent spinner. The detail shown by today's fly dressers undoubtedly reflects an increased knowledge of entomology and a heightened angler awareness of trout and their favorite food forms.

Even though many older patterns were dressed to represent individual insects, such as the Halford dry flies, an equal number were more or less generic in nature. Possibly the best example of the latter is the Royal Coachman, which may be found in the categories of dry fly, wet fly and streamer.

In England around 1900, R.S. Austin described to G. E. M. Skues a pattern that was to take its place among the classics. Skues, Britain's leading chalk stream nymph advocate, used the pattern as a wet fly with great enthusiasm and named it "Tup's Indispensable."

Eventually, the Tup's was also adapted to use as a dry fly, and it found favor with many anglers in this category as well. Indeed, I know several fly fishers who use the dry version even today when such pale mayflies as Sulphurs or Cahills are hatching.

Dressing: Emergent Tup's Indispensable

Hook: Size 14 to 18 Mustad 7948A or equivalent.

Thread: Yellow 6/0 prewaxed.

Tails: Pale ginger hackle whisks.

Tag: Yellow floss.

Body: Pinkish amber fur or synthetic.

Hackle: Pale ginger or cream from cock's cape.

My own experience with the Tup's Indispensable began in the early days of my fly tying career—a time when I was eager to try nearly every fly I could get my hands on. At first I used a dry fly version of the Tup's during an emergence of small, cream-colored mayflies. Several trout were rising along the edge of a rock outcropping in the center of a large pool, and the

by Chauncy K. Lively



little Tup's looked like a reasonable match of the naturals. But cast after cast over the uppermost fish drew a complete blank and I began to suspect I was lining it. I moved upstream a few steps and began to cast diagonally down to the trout to deliver the fly ahead of the leader. Again the fly passed over the fish without a stir, but at the end of the float, when I began my pickup to recast, the fly ducked under the surface and was promptly nailed by the second trout.

Taking the cue, I repeated casting downstream, drawing the fly under and retrieving it rapidly just under the film. The fish were obviously taking emergent nymphs, although I didn't realize it at the time. I managed either to catch, or to at least scratch, the remaining risers along the rocks.


The incident was puzzling to my inexperienced mind and I began to question the logic of fly fishing. I was happy with my success, but catching trout on a dry fly fished wet didn't seem to make much sense. However, over time I began to appreciate the complexities of the sport, along with a realization that trout have a point of view we may not always be able to assess.

Following that event my curiosity led me to try to discover why the dry Tup's worked so well as a wet fly, albeit a not-so-very-wet fly. Repeatedly casting and retrieving in a stretch of shallow water, I

eventually discovered that the stiff hackle of the dry fly creates a hump on the surface when drawn just under the film. The hump may be observed a fair distance away and it undoubtedly draws the attention of the trout. It's probably similar to the effect of an emerging mayfly nymph with its wings partially unfurled. A stiff hackle is the key to achieving this effect, but the hackle's barbles would be slightly shorter than normal, no longer than 1 1/2 times the hook's gape.

Since the fine-wire hooks found on standard dry flies are too light to be easily drawn under the film, I use a heavier-wire wet fly hook. The slight increase in weight facilitates quick entry through the film, but not enough to make the fly sink too quickly.

The Emergent Tup's Indispensable is a prime example of the special adaptation of a classic pattern to a particular function. It is not a pattern for the kind of general, everyday use for which we might fish, say, an attractor fly or a searching pattern, although it may well take its share of trout when fished at random. Its real value becomes evident when moving emergers are exciting the fish to a frenzy.

Work your Tup's through the feeders and use a light touch in striking. That's not easily accomplished when good fish are slashing wildly. But even if you break off a fly or two, it's an exhilarating experience not to be missed. 



1. Tie the thread behind the eye and wind back to the bend. For tails, bind a small bunch of ginger hackle barbs at the bend. Then wind forward over the tail butts, leaving a space behind the eye. Trim the excess butts and return the thread to the bend.

2. Tie in a 3-inch length of yellow floss at the bend and wind over the short end to the tie-in point. Wind the thread back to within 3 turns of the bend and trim the excess floss in front.



3. Wind the floss 3 turns from the base of the tails, tie off and trim the waste end of the floss.

4. Form a loop with the thread, apply dubbing to the thread and twist to close the loop. Wind the working thread forward.



5. Wind the body dubbing forward and tie off. Tie in the hackle on edge, at a right angle to the shank, with the dull side facing the eye. Bend the hackle butt forward. Bind it with two turns and trim the excess.

6. Wind the hackle three turns and tie off. Trim the excess, whip-finish and lacquer the head.





Six Ways to the Sea

by Linda L. Steiner

We all know that fishing requires concentration, but anglers from Izaak Walton on down have also recognized this as the contemplative sport. Think, for a moment, of the ultimate fate of the water swirling around your hip boots. If it isn't evaporated by the sun that's burning your neck, it's in for a long journey.

Here on a cold, wild trout stream headwaters, the droplets have only begun their voyage, first in impatient cascades, later dawdling through sluggish stretches, but ultimately ending up in the sea, with a new personality: salt water. But which sea, and by what route? It's a mighty lot of conjecturing from contemplating the waves at your boot tops.

In Pennsylvania, that flow is going one of six ways, because Pennsylvania has six major watershed systems. When the raindrops that became your fishing stream fell to earth, they committed themselves to one of these drainage regions. Five of the watersheds find their final outlets at the Atlantic Ocean, two

entering the sea far north, three in the Middle Atlantic states. One Pennsylvania watershed ultimately drains to the Gulf of Mexico, which itself is open-ended to the Atlantic. After thousands of miles, all the water flowing out of Pennsylvania ends up in the same big pot.

As in the Continental Divide in the western United States, down whose slopes water flows either to the Atlantic or the Pacific Ocean, Pennsylvania has its own watershed divides. These watershed borders are of relatively high elevation, with respect to the landscape on either side of them, which receives their flows. In some places the divides are knife-edged, either side of a steep mountain; in others it's a seemingly flat-top field with a subtle slope both ways.

Pennsylvania's watershed divide boundaries snake clear across or cut small corners out of the state, giving us three large and three smaller watershed systems. The big ones are the Delaware River and its Pennsylvania tributaries, draining 6,470 square miles along the eastern boundary of the state; the Susquehanna River and its feeders, receiving the run-off from the central part of the state, more than 20,920 square miles; and the Ohio River, with its major contributors, the Allegheny, Monongahela and Youghiogheny rivers, draining most of the western part of the state, over 15,600 square miles.

The smaller and lesser-known watersheds are in far northwest, the center of the northern edge, and the center of the southern border of the state. Up in the northwest, Lake Erie's Pennsylvania watershed is a small one, compared with what the Great Lake receives from other states with longer shorelines, only about 510 square miles. The Genesee River watershed, a tiny triangle in northern Potter County, collects water

from less than 100 square miles. The Potomac River watershed, a thin southern border slice, flows south from a drainage area of nearly 1,585 square miles.

Landforms influence flow

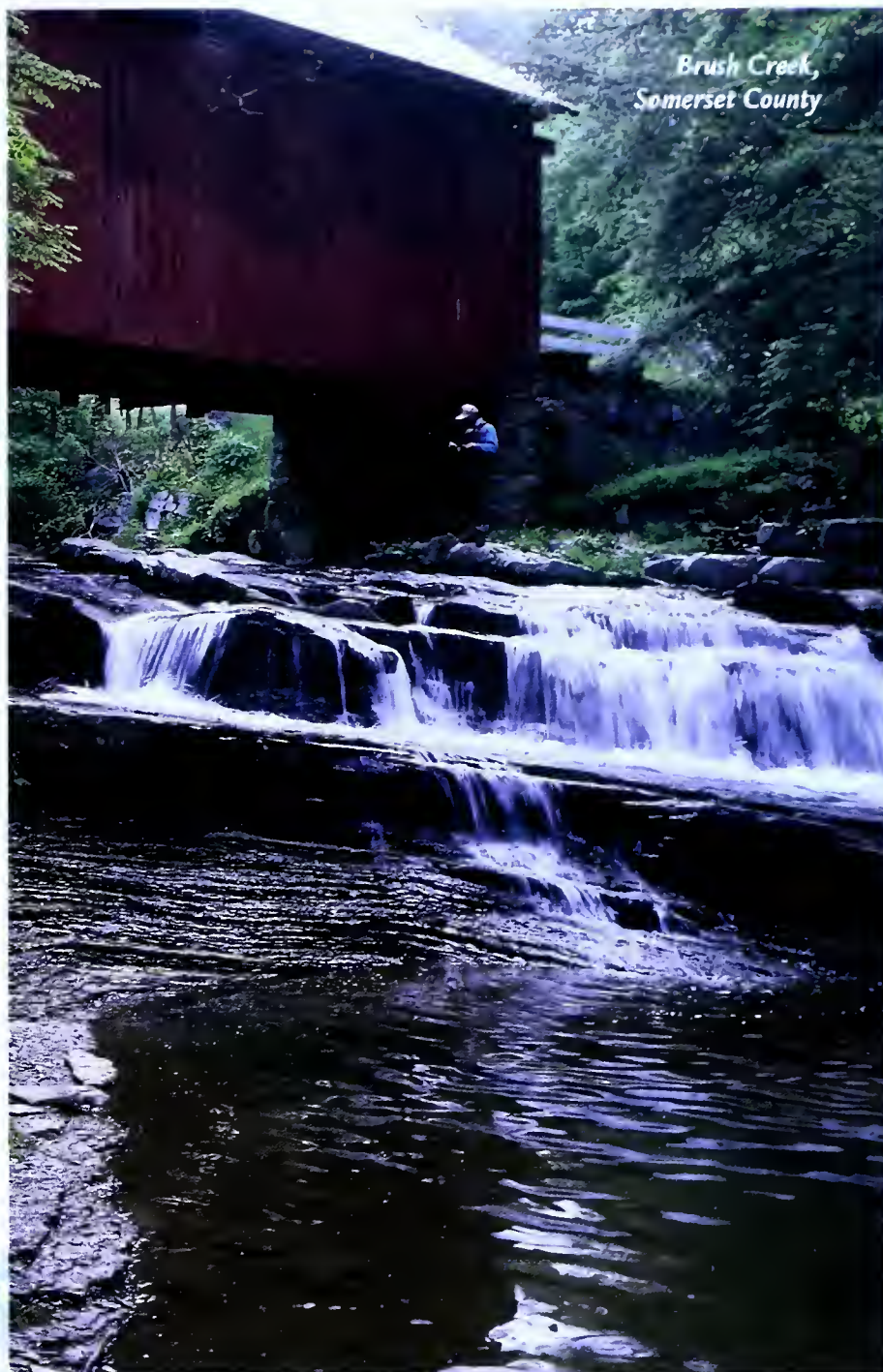
Why doesn't all the water in the state flow one way—say, dump eastward on a short course to the Atlantic? Blame, or credit, mountain building and plateau uplifting, and ancient glacial advances.

The watershed boundaries don't necessarily fit Pennsylvania's physiographic provinces, which are parts of the state that geologists have grouped because they have similar surface formations. However, the features of the major terrain types do help explain why our water leaves us in so many different directions. Geologists divide the state into about 15 physiographic provinces.

The Ridge and Valley Province sweeps through the middle part of Pennsylvania, in parallel curves of long mountains and wide valleys running from the eastern border to the southcentral border. The curved back of the Appalachian Mountain Section of the province is the Allegheny Front, the mountain front a dividing line with the next physiographic area. The eastern-most part of the Ridge and Valley Province, the Great Valley Section, links with the Shenandoah Valley farther south. Streams in the Ridge and Valley Province tend to flow southwest or northeast, following the lines of the valleys and ridges. They are directed mostly toward the Susquehanna, the Delaware and, to a lesser extent, the Potomac rivers.

The lowlands and gentle hills of the Piedmont Province, the physiographic arc that takes in the southeastern corner of the state, has its waters aimed by the confines of the Ridge and Valley Province to the Susquehanna and Delaware rivers.

West and north of the Allegheny Front is the geologists' Appalachian Plateaus Province. This covers most of western Pennsylvania and includes the Pittsburgh Plateaus, a swath angling from the southwest toward the middle of the state; the Allegheny Mountain Section, which abuts the Allegheny Front; and the Allegheny High Plateaus section, to the north. It's not a land of long mountain ranges, but of hills and raised flatlands that are cut deeply by streams. Some sections look like mountains in their own right. Except for its most eastern and northern portions, the Appalachian Plateaus Province's waters go to the Allegheny and other Ohio River tributaries.



Glacial effects

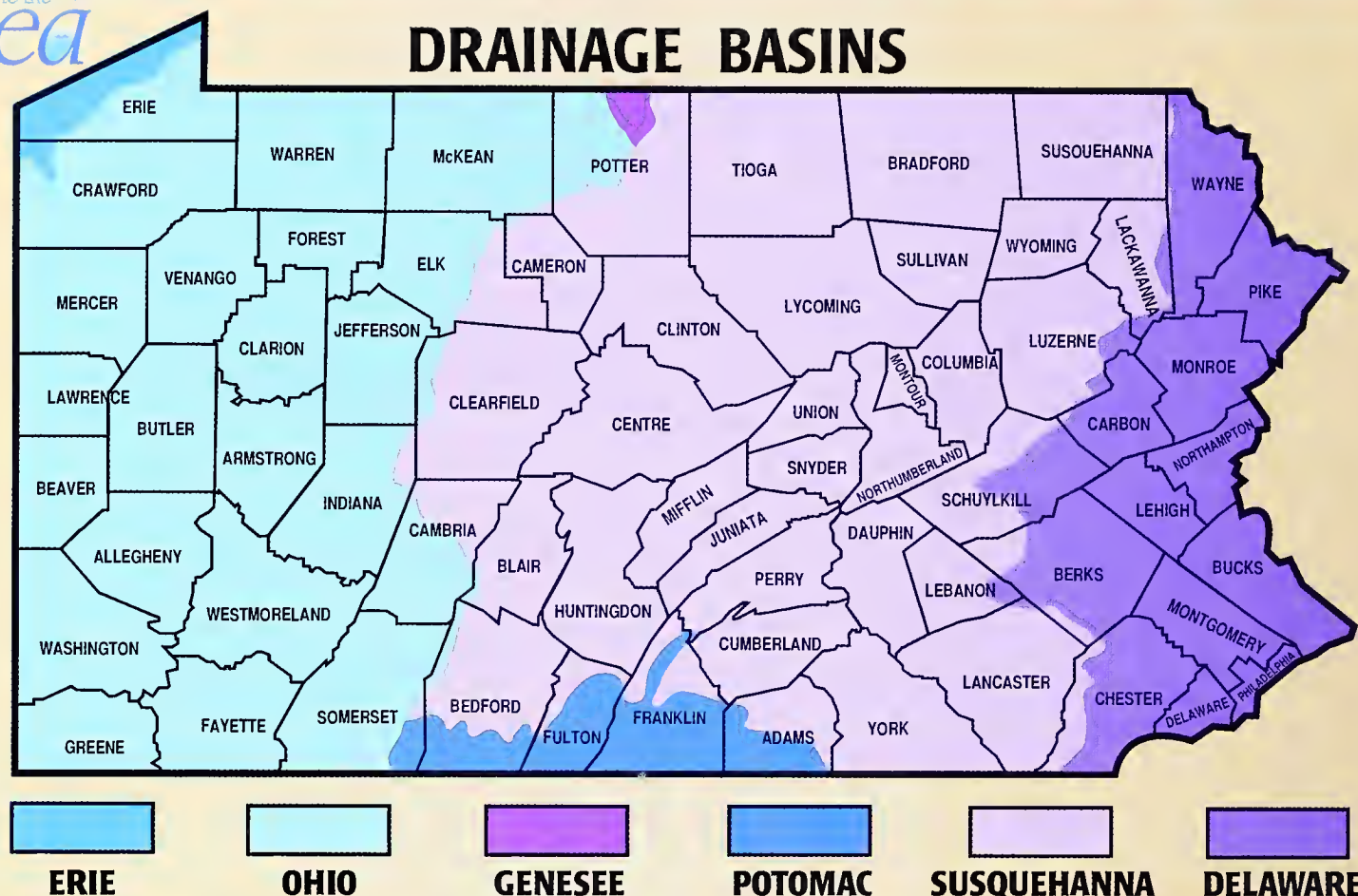
Two sections of the Appalachian Plateaus Province were once covered by great masses of ice that bore down on them from the north. The northern hemisphere's "Ice Age" began about a half-million years ago, with advances and retreats of massive glaciers over the landscape. Pennsylvania experienced several advances and retreats of the ice, the last one melting back about 15,000 years ago.

The glaciers bulldozed over the northwest and northeast corners of the state, changing the direction rivers flowed. The Allegheny River, French Creek, Tionesta Creek and the Beaver River drainage are all believed to have flowed north toward a river that ran where Lake Erie is now. Today they run south. In eastern Pennsylvania, the North Branch of the Susquehanna River and Pine Creek flowed north before the glaciers, traversing New York's Finger Lakes Region to join a river system where Lake Ontario now lies. These, too, were blocked and redirected south by the walls of ice. Lake Erie, the child of the glaciers, was once much larger. The narrow lowland along the lake in Pennsylvania, part of the Central Lowland physiographic province, was exposed when the ancient lake shrunk.

Some scientists say the current epoch is just a lull between the



DRAINAGE BASINS



last march of the glaciers and the next. Pennsylvania is also, for the time being, out of the mountain-building business. The once-high Appalachians are eroding into the valleys with the rains, the rivers, as always, working with gravity to find the fastest way to the sea.

Delaware River watershed

If the creek you're fishing is in the Delaware River watershed, it might be anywhere from Wayne to Chester County, or as far west as center Schuylkill County. The watershed divide meanders in a north-south direction, roughly paralleling the Delaware River, but a county or two westward. The major tributaries are the Lehigh River and the Schuylkill River. Waters in this drainage find their way to the Atlantic Ocean via the Delaware River, pass into the Delaware Bay and round Cape May, New Jersey.

The northern section of the Delaware River watershed demarcates what's commonly called the "Poconos," a land of waterfall, forest, lake and swamp, which owes its aspect to the glaciers. The Pennsylvania Fish and Boat Commission biologist whose fisheries management area is the upper Delaware River basin is Dave Arnold. The waters of the Poconos are mostly infertile, says Arnold, the natural result of sandstones and shales that underlie them. Some are also stained brown by natural tannins seeping from decaying organic material in the region's many bogs, which leaves the water slightly acidic. It's a place for the brook trout, chain pickerel, pumpkinseed and shad. Entering the Delaware on their spawning migration from the sea, shad swim the whole way up the river's course in Pennsylvania.

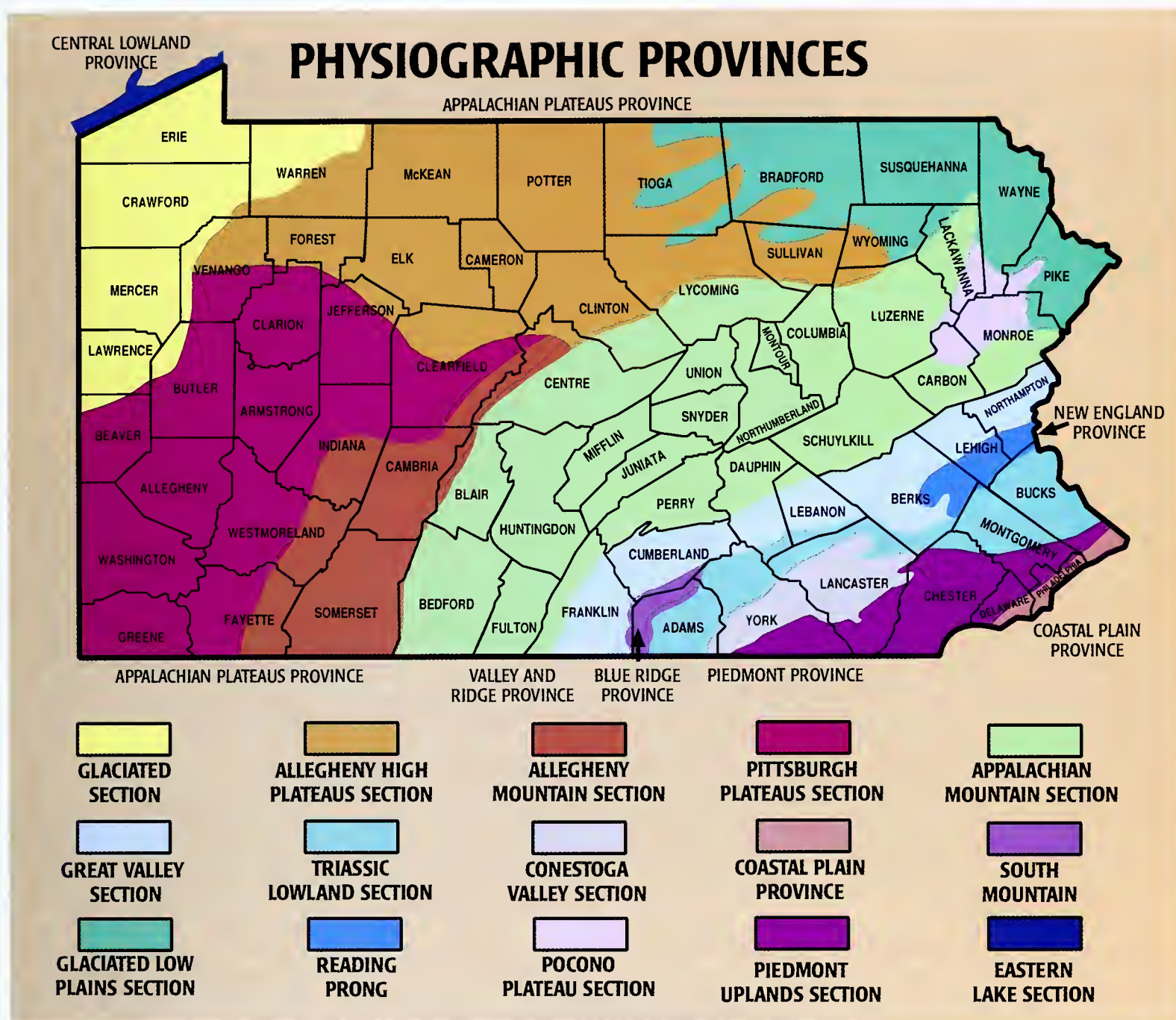
The Delaware picks up additional nutrients as it reaches the outflows of richer streams, flowing through limestone deposits near Allentown. The Pocono region, says Arnold, is one of the fastest growing in the state with human development, which in some cases has added useful fertility to sterile streams, although run-off and siltation are problems. The central part of the

watershed receives acid mine drainage pollution, coming out of the anthracite "hard coal" country. Not all water running off the land reaches the ocean in good shape.

The lower Delaware River watershed is the responsibility of Fisheries Manager Mike Kaufmann. It's unique in the state, because this is the closest Pennsylvania gets to "ocean front property." It may not actually be "seashore," but the lower Delaware is tidal up to the fall line, between Morrisville, Pennsylvania and Trenton, New Jersey.

Kaufmann says the lower Delaware has three different groups of fishes: ones that live in fresh water, ones that can live in both fresh and salt water, and ocean fish. The section down to about the Schuylkill River has typical resident freshwater fish, like smallmouth and largemouth bass, channel catfish and sunfish, with migratory shad, herring and eels passing through. Where the saltwater and freshwater mix, in a zone that starts near the mouth of the Schuylkill, there are blue crabs, white perch, mullet, menhaden, bluefish, weakfish and striped bass. Some saltwater species' young, like croaker and bay anchovy, use the Delaware Bay as a nursery area, moving to the ocean later. The lower Delaware also has the federally endangered shortnose sturgeon and some rare, tiny sunfish species.

The lower Delaware River watershed flows through rock types rare in the state, not just the usual sedimentary sandstones and shales, but crystalline, heat-formed metamorphic rocks, like gneiss, schist, serpentine and quartzite. Kaufmann says the streams have a fair amount of fertility, with some quality limestones adding their nutrients. Creeks tend to be sluggish, but they fall faster as they approach the Delaware. Although intense human settlement carries water quality problems like sewage and untreated run-off, the lower Delaware has come a long way, says Kaufmann, from the "bad old days" of the 1960s and early 1970s, when it was so polluted, so deprived of oxygen at times, that there was a block to fish life.



Susquehanna River watershed

In Pennsylvania, the main-stem Delaware is totally free-flowing, unlike the lower Susquehanna, which has a series of dams. Kaufmann's fisheries management area crosses into the Susquehanna River watershed. Kaufmann has the lowermost section of the Susquehanna in Pennsylvania, from York Haven Dam to the Maryland line. From there the Susquehanna completes its journey to an arm of the Chesapeake Bay, in Maryland, which opens narrowly to the Atlantic between Virginia Beach and Cape Charles, Virginia.

With the exception of a 14-mile stretch of free-flowing water downstream of York Haven Dam, the lower Susquehanna is more like a series of lakes impounded by Safe Harbor, Holtwood and the Conowingo hydropower dams. Before the dams, shad and other anadromous (migrating from the ocean to fresh water) fish ran the Susquehanna and its tributaries. Kaufmann says York Haven Dam is the last obstacle to fish passage into the free-running Susquehanna and its feeders, with a fishway planned for that facility over the next two years. Then herring, white perch and white bass will once again swim in the Susquehanna.

The streams come out of the surrounding countryside into the lower Susquehanna from rolling hills or plateau, cutting deeply

into their valleys, says Kaufmann. The soils are some of the most fertile in the state, and streams are often discolored, from runoff after rains as well as natural algae and plankton growth. The lower Susquehanna is correspondingly rich.

The Susquehanna River's immense watershed cuts a wide swath through the middle of Pennsylvania, from New York to Maryland. The eastern border is the Delaware River watershed. The Susquehanna River watershed's western divide begins in northern Potter County, moves west to take in most of Clearfield County, and dips to slice into eastern Somerset County. The Potomac River drainage divide provides the southern border, except where the Susquehanna spills through to Maryland. It is like three watersheds in one, draining nearly half of the state, and includes the West Branch and its feeders; the North Branch, which dips in and out of New York state before heading full-tilt south through Pennsylvania; and the main-stem Susquehanna and its major tributary, the Juniata River.

Larry Jackson is responsible for fisheries management in the portion of the Susquehanna River basin below the confluence of the West Branch and East Branch, down to just south of Harrisburg. He also has the Juniata River system. This watershed section has great diversity, with cold, infertile forested headwaters, as well as rich, limey valleys hosting some of the finest

trout and warmwater streams in the state. The tops of the mountains, with their poor sandstone soils, have low-production brook trout streams, but in 15 minutes, says Jackson, an angler can be in a valley stream, catching big brown trout in fertile, limestone spring-fed water. The Susquehanna itself near Harrisburg holds an "exquisite smallmouth fishery," he says. Agricultural and other land use run-off is the biggest water quality problem. Clean-up of pollutants from paper mills in the region have helped the Little Juniata, and the Frankstown Branch is improving.

Susquehanna West Branch

Plunging its fingers into the coal-bearing shales and sandstones of the densely wooded, deep-cut plateaus is the Susquehanna River's West Branch sub-basin. Along, predominantly east-flowing river course stretches from Clearfield, Cambria, Cameron and Clinton counties, past Williamsport to the river's southward turn at Muncy. The West Branch and many tributaries are fouled by mine acid drainage, losing hundreds of miles of water to fishery productivity, but there are also numerous backwoods trout streams.

This is Bruce Hollender's fishery management charge. North of Route 80, he says, much of the land is not degraded by agriculture or development, and the headwater streams are "relatively pristine," renowned for wild brook trout. These grade to "fine freestone brown trout streams" lower off the mountains, says Hollender, then to smallmouth bass water, as in the lower Driftwood Branch. There's a "real dichotomy," he says, between the rocks, soils and streams that flow from the western section of the watershed, with very low alkalinity and easily ruined by mine acid, and the highly alkaline, nutrient-rich waters of central limestone valleys, especially near State College.

Susquehanna North Branch

Robert Moase has fisheries management responsibility for the "other" branch of the Susquehanna, the North Branch, whose headwaters are in Otsego Lake, near Cooperstown, New York. The North Branch dips into Pennsylvania in northern Susquehanna County, bends back into New York at Great Bend, and re-enters Pennsylvania to stay at Sayre, in Bradford County.

The North Branch at first drains a region that glaciers covered and, in this state, flows mainly through broad valleys. It gets water from plateau farmlands and forested hills along the eastern part of the state's northern border, and is fairly fertile, says Moase. There's good fishing for smallmouths, walleyes and muskellunge. The river is affected by mine acid and urban uses in the Scranton through Wilkes-Barre section. Some of the higher elevation tributaries that drain sandstone-based hills have low alkalinity and are degraded by acid precipitation, says Moase. Below the industrialized Lackawanna-Luzerne County corridor, the fishing improves. The North Branch gives up its flow to the main branch of the Susquehanna, in Northumberland County.

Genesee River watershed

A nearly "forgotten" watershed of Pennsylvania is the Genesee River, which makes a small triangle in northern Potter County, with its base to the New York border. This, too, is Bruce Hollender's jurisdiction. The northern section is rolling, with farming and more fertile streams than are found in Potter County's southern mountains. The Genesee's headwaters are near Ulysses, and it and its tributaries quickly turn their back on Pennsylvania and head north, into New York. They come to the spectacular waterfalls in New York's Letchworth State Park, arrive at Rochester, New York and empty into Lake Ontario. Lake Ontario's downstream outlet is the St. Lawrence River, ultimately the Atlantic Ocean.

Potomac River watershed

The other lesser-known drainage is part of Larry Jackson's responsibility, and a lengthwise slice that seems to be cut out of the bottom of the Susquehanna watershed. This is Pennsylvania's contribution to the Potomac River watershed. The boundaries are in Somerset and Adams counties, with one river course jutting southward, the West Branch of the Conococheague. Jackson says that in this series of ridges and valleys, the streams are less fertile in the west, and more rich as you travel toward Gettysburg. The fish life strongly resembles the Susquehanna drainage. The southern-flowing streams cross into Maryland and empty into the Potomac, which drops through Washington, DC and to Chesapeake Bay, with its access to the sea.

Ohio River watershed

The Ohio River watershed is headed an entirely different direction. Cross the watershed divide in Somerset County, angle to the state's far corner in Greene County, go up to mid-Beaver County along the western edge, add in the Allegheny up to Lock 6, and you have Richard Lorson's fisheries management area.

The Ohio River, with its major tributaries, the north-flowing Youghiogheny and Monogahela, and the south-flowing Allegheny, contains a diversity of fishes unrivaled in the state's other watersheds, says Lorson. The Ohio empties into the Mississippi River, which drains the entire central United States, finally spreading itself into the Gulf of Mexico. Fish species from that vast region have colonized the river system, and several unusual to Pennsylvania live in the big, slow Ohio.

There's white bass, sauger, shortnose gar, smallmouths, buffalo and freshwater drum, and paddlefish have been restocked.

The "Pittsburgh area" of the Ohio River drainage has steeply falling streams, some with waterfalls, coming off high plateaus and the Allegheny Mountains, lower farmlands with meandering, muddier streams, and creeks that drain the bituminous, "soft coal" region. There is good fishing, as well as water degraded by acid mine drainage. Lorson says he's "excited over how far we've come in the last 20 years," in improving water quality in the region.

Above the locks, the Allegheny River is free-flowing to Kinzua Dam, near Warren. The reservoir backs up into New York, and the Allegheny River above the impound-



Laurel Hill
Creek,
Somerset
County

photo: Linda and Bob Steiner

Writing Readers

The Best Catch of All

by Jim Croyle



photos-Jim Croyle

Who would have believed it—a beautiful lady, Jeannie, from Fair Lawn, NJ, just minutes from New York City, someone whose spare time was taken up with Broadway shows, movies and lots of girlfriends. She's a lady who had two careers—one in social work, another one in

cosmetics. Her long fingernails were painted bright red and they were always well-manicured.

I met her four years ago. I took her out on my boat and put a fishing rod in her hands, the likes of which she had never done before. It was love at first sight—my love for her and her love for fishing. She seemed to be a natural—took to fishing as if she'd grown up around it all her life.

Putting a worm on a hook, however, wasn't as natural. I still haven't quite figured out how you bait a hook while chasing a worm across the deck of a boat—with the hook! Now that has changed. She picks them up by the dozen out of the yard at night, complete with flashlight and coffee can. She also has graduated from worms to catching minnows and crayfish with a net. I'm just glad she takes me along!

We do a lot of fishing now, mostly in rivers. She had a painful nerve condition in the small of her back for which the doctor recom-

mended surgery. "No way," she said, and we prayed about it. She exercised diligently and in only two months she was wading rivers again, as if there had never been a problem. She follows me up the rivers and down the streams in search of that first legal bass, trout, walleye or steelhead. Even the bluegills and rock bass aren't safe anymore!

She now makes her own lures. She

even takes her fish off the hook and gets very excited when she loses a big one. She's my best friend, my partner and now my wife—sorry, guys, I caught this one. You didn't think I was going to release her, did you? Best catch I ever had!

I asked her why she likes fishing so much and she said, "Where else can you go and be one with nature, look at beautiful scenery, see all kinds of wildlife, get great exercise, enjoy the sport of fishing and catch dinner, too!" ☐



ment curves to re-enter Pennsylvania near Eldred. The headwaters are in Potter County, near Gold. There, says Ron Lee, the fisheries manager for the "upper" Allegheny and its tributaries, you can step across the river.

This section of the Allegheny, and especially its feeder French Creek, contain the most varied aquatic life in the state, ranging from freshwater mussel species to common and rare darters, brook lampreys, madtoms, hellbenders and mudpuppies, and a gamut of nearly 80 different fishes. It is believed the river's original northward flow allowed it to pick up one set of fauna, while water life of the Mississippi River system was added when the river turned southward because of glacial blockage.

French Creek and the streams coming into the upper Allegheny from the west, says Lee, off glaciated land, are more fertile than those coming from the unglaciated eastern high plateaus. Coal seams have affected some streams with mind acid, although the Clarion has come back from a degraded past to an ever-increasing fishery. This is Pennsylvania's oil country, and oil and natural gas activity produces some oil, brine and dissolved heavy metal pollution.

Before the Ohio River reaches Ohio, it picks up flows from terrain along the western border of Pennsylvania, the Beaver River, the Shenango (which flows out of Pymatuning Lake), Connoquenessing, Slippery Rock and more. The land is flat or gently rolling, covered with clays and gravels left by the glaciers. Streams are extremely fertile, says Craig Billingsley, Area Fisheries Manager. There are few trout streams, mostly warmwater

fishing, and much less fish diversity than in the Allegheny River drainage.

Lake Erie watershed

Billingsley also oversees the state's Lake Erie tributaries, which drain a narrow band inshore from the big lake. Conneaut Creek reaches deepest, toward Pymatuning, but most streams, like Elk Creek, Walnut, Four Mile and Twelve Mile, scarcely penetrate 10 miles inland. The streams run through the shales, clays and gravels that were inundated in previous glacial lakes, which had higher water levels than present Lake Erie. Some creeks cut deep gorges through the sediment to expose impressive cliffs, while the fertile countryside above is flat.

The usual complement of warmwater fish are in the streams, plus some Lake Erie fish use the tributaries at times. Steelhead trout run as far upstream as they can, while spawning shiners, smelt, carp, goldfish, bass, catfish and gar visit the stream mouths. Rain in this area doesn't travel far in stream flow, but quickly joins Lake Erie, eventually to plummet over Niagara Falls to Lake Ontario, then to the St. Lawrence River and the North Atlantic.

There are six ways for the water pressing against your hip-booted legs to reach the sea, depending on where in the state you're standing. Six different passages with their own personalities, short and sweet in the Lake Erie watershed, or the long way around along the North Branch through the length of the Susquehanna. Wasn't it nice that for a moment in its epic journey, the water paused at your side? ☐



1998

Seasons, Si COMMONWE

SPECIES

SEASONS

All species of TROUT and SALMON



Regular Season- April 18 at 8 a.m. to midnight September 7

Extended Season- all approved trout streams and their downstream areas; and all lakes and ponds, January 1 to midnight February 28, September 8 to midnight December 31

BASS- Largemouth and Smallmouth and Spotted all inland waters**

January 1 to midnight April 17 and 12:00 a.m. on June 13 to midnight, December 31**

MUSKELLUNGE and Muskellunge hybrids

January 1 to midnight March 14 and 12:00 a.m. on May 2 to midnight, December 31

PICKEREL ****

PIKE- Northern and Amur

WALLEYE and hybrids (Saugeye)

SAUGER

AMERICAN SHAD

Open year-round

AMERICAN SHAD (Lehigh River and tributaries)

Open year-round

AMERICAN SHAD, HICKORY SHAD, ALEWIFE, BLUEBACK HERRING (Susquehanna River and tributaries)

Closed year-round

HERRING and HICKORY SHAD

Open year-round

AMERICAN EEL

Open year-round

STRIPED BASS and STRIPED BASS/WHITE BASS HYBRIDS

Open year-round

SUNFISH, YELLOW PERCH, WHITE PERCH, CRAPPIES, CATFISH, ROCK BASS, SUCKERS, CARP, WHITE BASS

Open year-round

BAITFISH and FISHBAIT (except mud bugs)

Open year-round

AMERICAN EEL (as baitfish)

Open year-round

MUDBUGS (dragonfly nymphs)

Open year-round

PADDLEFISH



Closed year-round

* Includes the Youghiogheny Reservoir and does not include SPECIAL REGULATION AREAS.

*** Approved trout waters

** In the Summary, see Conowingo Reservoir and Susquehanna River and tributaries charts for special bass seasons applicable to flowing waters within the Susquehanna River Basin.

**** During the period

1998 OPENING DATES



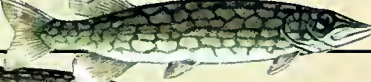





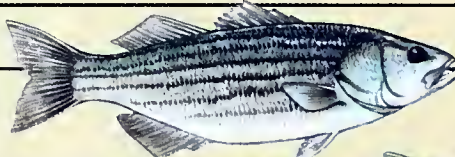
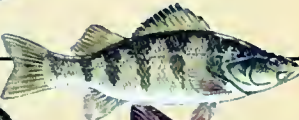
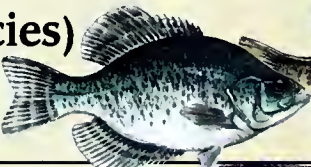
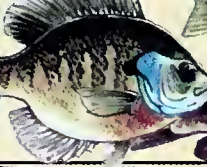

TROUT: APRIL 18

MUSKELLUNGE

es and Creel Limits

ALTH INLAND WATERS*



	MINIMUM SIZE	DAILY LIMIT
	7 inches	8- streams, lakes and ponds (combined species) except areas with special regulations
ns and nd	7 inches	3 (combined species)
m.	12 inches	6 (combined species from all habitats) 
m.	30 inches	2 (combined species) 
	15 inches	6 
	24 inches	2 (combined species) 
	15 inches	6 
	12 inches	6 
	no minimum	6 
	no minimum	1 
	CLOSED	0
	no minimum	no daily limit
	8 inches	50 
	20 inches	2 (combined species) 
	no minimum	50 (combined species) 
	no minimum	50 (combined species) 
	6 to 8 inches	50 
	no minimum	Unlimited if taken from lakes, ponds, swamps, and adjacent areas. 50 per day if taken from moving waters (rivers and streams)
	CLOSED	0

be closed to fishing from March 1 to opening day of the regular trout season in April.
12:01 a.m. January 1 to midnight March 14 and 12:01 a.m. December 1 to midnight December 31, the daily limit of pickerel is three.

ES: MAY 2

WALLEYE: MAY 2

BASS: JUNE 13

The 1998 Trout/Salmon Stamp and Print Competition

A watercolor painted by Ed Parkinson of Browndale, PA, was selected as the winner of Pennsylvania's 1998 Trout Stamp Art Competition. Parkinson's stream scene depicts an angler on the West Branch of the Delaware River on a glorious autumn day. Parkinson's painting will become the Fish and Boat Commission's 1998 Trout Stamp. In addition, the painting will be available as a limited-edition fine-art print from Wilderness Editions, Warriors Mark, PA.

The competition for the 1998 trout/salmon stamp and print took place June 3 at the Radisson Penn Harris Hotel and Convention Center, Camp Hill. There were 66 paintings, submitted by 61 different artists, on the subject of "trout streams of Pennsylvania." The winners are:

1st Ed Parkinson, Browndale, PA - Delaware River, West Branch.

- 2nd Luther Hall, Mystic, Connecticut - Loyalsock Creek.
- 3rd Rob Stine, Vestal, New York - Slate Run.
- 4th Luther Hall, Loyalsock Creek.
- 5th Frederick Carrow, Oil City, Pennsylvania - Oil Creek.
- 6th (tie) Roger Cruwys, Bozeman, Montana - Little Juniata River.
- 6th (tie) Lorraine Bush, Reading, Pennsylvania - Tulpehocken Creek.
- 8th Bob Anderson, Volant, Pennsylvania - Oil Creek.

1st



2nd



3rd



Judges and other dignitaries were (left to right) Del Graff (judge), Director of the Commission Bureau of Fisheries; Peter A. Colangelo, Fish & Boat Commission Executive Director; Al Mayhew (judge), retired, former Director of the Commission Bureau of Administration; George Lavanish (judge), Wilderness Editions Publisher; Enoch "Inky" Moore (judge), Commissioner; Dennis Guise (judge), Commission Deputy Executive Director and Chief Counsel; Ted R. Walke (judge), Chief of the Commission's Graphic Services Section; and Tim Klinger, Trout/Salmon Stamp Program Manager.

The 1998 trout stamp print and patch will be available October 1, 1997, from Wilderness Editions, RD 1 Box 73, Warriors Mark, PA 16877; telephone (814) 632-7645. The 1998 trout stamp will be available December 1, 1997, from Commission licensing agents. The 1997 trout stamp print, Neshannock Creek by Christopher Leeper, of Youngstown, Ohio, is also available from Wilderness Editions.



Good Hope Dam,
Conodoguinet Creek,
Cumberland County

CONSULTATION AND GRANT PROGRAM for Fish Passage and Habitat Restoration

Purpose

This document describes the Pennsylvania Fish and Boat Commission's (PFBC) consultation and grant program to provide fish passage and stream habitat restoration at dams on tributaries to the Susquehanna River and Chesapeake Bay. This program is supported by EPA Chesapeake Bay Program funding. Tributary fish passage and habitat restoration are integral parts of the American shad restoration project managed by the Susquehanna River Anadromous Fish Restoration Cooperative.

Background

- The Susquehanna River Basin is the largest river system in Pennsylvania, largest river system tributary to the Chesapeake Bay, and historically boasted the largest runs of migratory fishes in the east coast.

- When the Fish and Boat Commission was established in 1866, its primary responsibility was to restore migratory fish runs to Commonwealth waters, including the Susquehanna River Basin.

- Pennsylvania law has long provided

that persons who own or maintain dams on the waters of Pennsylvania must install fish passage facilities or other devices to enable fish to ascend and descend the waters at all seasons of the year. An alternative to fish passage devices is removal of the blockage. The current version of this law is set forth at 30 Pa. C.S. Ch. 35.

- The Chesapeake Bay Program, began in 1987 and administered by the Environmental Protection Agency, has established a priority for restoration of migratory fish to historical habitat within the Chesapeake Bay drainage.

Tributary fish passage and habitat restoration are integral parts of the American shad restoration project managed by the Susquehanna River Anadromous Fish Restoration Cooperative.

- The Chesapeake Bay Program's Living Resources Subcommittee has established a Fish Passage Work Group and a Habitat Restoration Work Group to facilitate the restoration of migratory fishes to historic habitat.

- The PFBC represents the Commonwealth of Pennsylvania on the Fish Passage Work Group and is represented on the Living Resources Subcommittee.

- The 1993 Susquehanna River Settlement Agreement with the utility owners of hydropower dams on the main stem of the Susquehanna River, provided for fish passage of migratory fishes at Holtwood, Safe Harbor and York Haven dams.

- The PFBC annually applies for funding to support migratory fish restoration, including fish passage on tributaries, through the Chesapeake Bay Program's administration of Section 317 of the Clean Water Act.

- The PFBC has used Bay Program funding to support a project by Pennsylvania State University to inventory "Impediments to Fish Passage in the

**Dock Street Dam,
Susquehanna River,
Harrisburg**



Pennsylvania Tributaries to the Susquehanna River.” This project identified and characterized blockages and available habitat to migratory fishes on large tributaries entering the Susquehanna below the confluence of the Juniata River.

● In 1996, the consultation and grant program has supported removal of two low-head dams and the construction of one permanent fish passage facility. Five removals are scheduled for 1997. Solicitation for projects to be implemented in 1998 and future years is ongoing. Requests for participation in future years are currently being accepted for review and priority evaluation.

Who should participate

Existing or perspective owners of dams or blockages in the Chesapeake Bay drainage of Pennsylvania are eligible to participate in this program. The program coordinator will be contacting owners of high priority blockages to fish passage and persons applying for permits to construct or modify dams. Provisions for fish passage can be a permit requirement for any plans to modify or construct new dams.

Consultation support

The PFBC Anadromous Fish Restoration Coordinator is available to assist with provisions for fish passage at blockages in the Susquehanna Basin. Coordination assistance can include acquisition of project funding, state and federal resource agency coordination, facilitating acquisition of necessary permits and waivers; engineering design and technical support, and education and information support.

The PFBC and Pennsylvania Department of Environmental Protection, Division of Dam Safety can utilize a procedure authorized under the waiver provision of Section 105.12 (a) (16) to facilitate the breaching and removal of dams. The

procedure is designed to make it easier and affordable for owners to remove unwanted and unsafe dams in Pennsylvania.

Funding support

Providing fish passage is ordinarily the responsibility of the owner of the dam. However, funding support may be available to assist dam owners in carrying out their responsibilities. Chesapeake Bay Program funding for fish passage project design and implementation may be available. Bay Program grants for fish passage require a 1:1, federal:nonfederal match. Limited nonfederal match may be provided by the PFBC based on project priority and capability of the dam owner to contribute financially.

Priorities for funding projects


Chesapeake Bay Program funding support for fish passage and habitat restoration is available from federal fiscal budget allocations. Considerations for

setting priorities for program funding include:

- The owner's willingness to breach and remove the dam. Removal is the most inexpensive and environmentally beneficial alternative.
- Closeness of blockage to the Chesapeake Bay and its relationship to other blockages downstream.
- Quantity and quality of habitat available upstream of blockage with implementation of fish passage.
- Ability of dam owners to contribute nonfederal match for Bay Program grants.
- Capability of owner to operate and maintain fish passage facilities.

Benefits of removing dams

Breaching, demolition and disposal of dams is the preferred method for achieving fish passage. Benefits of removing dams include:

- Unimpeded movement for migratory and resident fish.
- Eliminates public safety hazard.
- Reduced liability concerns for dam owners.
- Restoration of stream ecosystem functions.
- Improved habitat for stream plants and animals.
- Eliminates fish ladder operation and maintenance.
- Reduced watercraft portage. 

For information, contact: R. Scott Carney, Anadromous Fish Restoration Coordinator, Pennsylvania Fish and Boat Commission, 1225 Shiloh Road, State College, PA 16801-9495; (814) 355-4837.

REQUEST FOR ASSISTANCE

Consultation and Grant Program for Fish Passage and Habitat Restoration

Name _____

Address _____

Telephone _____

Stream name _____

Use of dam _____

Send form to R. Scott Carney, Anadromous Fish Restoration Coordinator, Pennsylvania Fish and Boat Commission, 1225 Shiloh Road, State College, PA 16801-9495



Casting Lines

with
Dave Wolf

The Old Man and His Minnow Bucket

Butch was a distant relative, distant enough not to explain. He was a short man with cheery white hair and worn teeth. He smiled and laughed continually and I always attributed his happiness to all the time he spent fishing, hunting and just spending time in camp. Camp stood on the mountain top that overlooked the Kettle Creek valley, not a bad place to find a quick smile.

He had come to fish, he announced, as he swung open the front door without knocking first. He never did knock. He had the feeling he was always welcome, and he was. When I asked where he wanted to fish, he never cared where, nor did he pay much attention to any promise of good fishing; to Butch fishing was always good. He knew that he could catch fish anywhere and at any time. He did not fear failure; he knew little if anything about it; one might say that Butch was a happy man or that he simply chose to be happy.

In many eyes, Butch had no reason to be happy. He had made only a marginal living before retiring and his home was as modest as the cabin and the older model vehicles he drove.

His eyes always flashed with excitement, eyes that highlighted his light complexion and the deep lines the constant smile wore into his face. I grabbed my always-strung rod from the rack and we headed upstream in my Jeep.

The river was high, the way that Butch liked it to be. The old galvanized minnow bucket was already strung over his shoulder and I was sure it was filled with live "shiners," as it always was. Butch was in excellent shape, and it may have been an insult to call him "old," although I don't think it would have mattered to him.

He looked at my fly rod and the streamer that dangled from the hook-keeper.

"The river's too high and off-colored for

that thing," he said. Then he smiled and looked back to the stream that paralleled the winding, pot-holed blacktop. Butch was as practical about his fishing as he was about life. He fished minnows only; nothing else, but he only fished the first couple of months of the season and then again when the waters became high and a little off-colored.

I pulled the Jeep to the side of the road and Butch pushed open the door and was casting before I could get my rod together. Our plan was to fish the two miles back to the house. I knew we would have to cross the stream a number of times to work the better holding waters. I was concerned that the stream was too high and swift for Butch, but of course, he would prove me wrong. Our first crossing came after he had taken two nice carry-over browns, rapped them on the head and slipped them into his moss-carpeted wicker creel. Butch ate his fish, and he figured two browns of 15 inches would fill his stomach quite nicely.

I took two smaller browns and released them. Butch didn't understand the releasing of fish, and wondered out loud, "Why fish if you aren't going to keep them?" I knew that I could not explain my choice of fly fishing under all conditions as simply something I preferred, nor could I convince him that releasing fish was something good. I knew that any form of discussion of the matter would not change his convictions that were every bit as strong as mine.

Butch was in midstream fighting the strong currents of the bank-full river before I realized it. I struggled to follow, the stones turning underfoot to be washed away with the current, the gravel melting beneath my feet. The strength of the current was more than I expected, and with the waters trickling down the top of my waders, I looked to see if Butch was treading water. I knew I was a good four inches taller than he was and I knew he must have been forced to tiptoe his way at some point during the crossing.

He looked back and flashed a wide grin, "Need to get yourself a wading staff, son," he said. He, of course, had one, the practical man that he was. Perhaps the reason he lived to gain old-age status and smile about it.

I caught no more fish; Butch's total was five—all nice fish, all browns. We had completed at least three more precarious stream crossings and my legs tired trying to keep up with the man who was at least 40 years my senior. I also took into consideration that he had five hefty fish and a minnow bucket to carry.

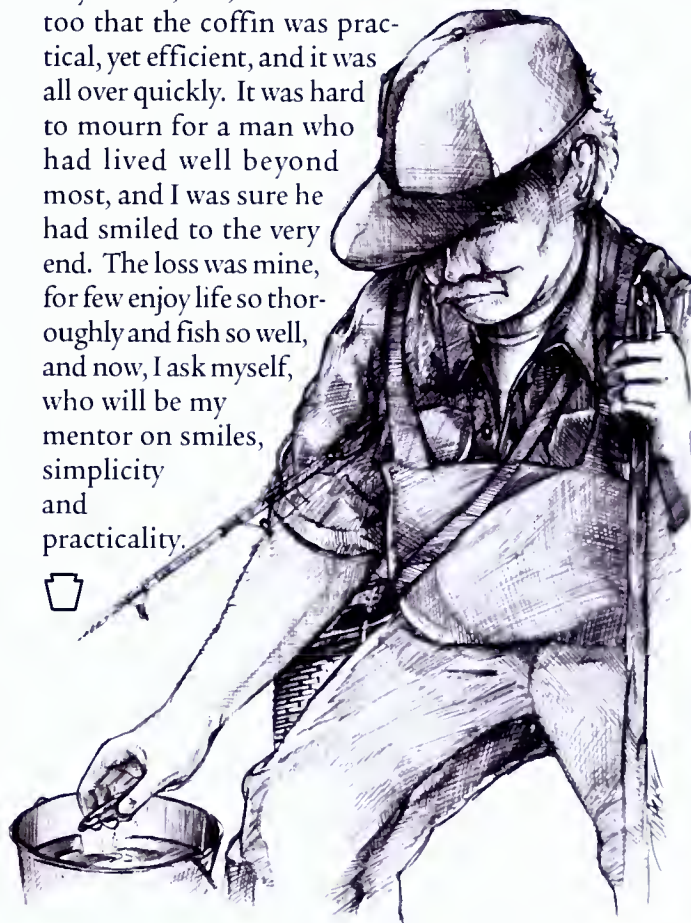
Butch motioned for me to stop and sit

with him for a spell. I readily obliged. I was surprised when he said he had enough fish and that if I wanted to fish some more he would simply follow along, although he saw no point in it all, because I would just put them back anyway. I looked at the old man and into his eyes. I knew he could fish all day and take more fish. I also knew that if he continued to fish he would keep all the fish he would catch and that he knew it, too. He had set his own limit and that depended on the number and the size of fish he had taken.

"Got myself two meals and a breakfast right here," he said, patting the wicker creel. The man was simply too practical to argue with and I never would have done so. He was born into hard times, raised during poor economic times, and he had learned hard lessons early in life and they had stuck.

I took down the rod and we chatted as we walked back home. I was always taught that an older person is usually wiser than most younger folk. It comes with experience, I figure, with the experience of living and fending for oneself... and if Butch was still smiling through all those years, well then, there was no sense in trying to explain the virtues of catch and release or anything else, for that matter.

A simple man with a smile is hard to find, and when they held the service behind the small white church amid the coal fields of home, there was simplicity in the way that it, too, was conducted. I noted too that the coffin was practical, yet efficient, and it was all over quickly. It was hard to mourn for a man who had lived well beyond most, and I was sure he had smiled to the very end. The loss was mine, for few enjoy life so thoroughly and fish so well, and now, I ask myself, who will be my mentor on smiles, simplicity and practicality.



Three Boating Knots with a Hitch

by Cliff Jacobson



These classic boating knots can help you tie your boat to a pier or piling (clove hitch), tie your boat to a ring or bar (half hitches), tie two ropes together (sheet bend), and snug your boat to a cartop or secure your gear in your boat (power cinch).

When I was a teenager in the 1950s, I worked summers for a Boy Scout camp in Michigan. The job paid almost nothing but the living was free and I could canoe or sail whenever I liked. The camp had a number of old sailboats, most of which were junk. But there was one sleeper in the crowd—an 19-foot wood-ribbed C-scow that was built in 1938. If the wind was right, *White Lightning*, as we called her, could run the socks off every sailboat—and most powerboats—on the lake. Naturally, there were those who disagreed, so what began as an innocent sail often ended as a no-holds-barred race.

Once, in our exuberance, my friend and I did a very stupid thing—we converted the main sail from a smaller 16-foot sailboat into a spinnaker for the gaff-rigged scow. Then we waited until there were storm warnings on the lake and took our creation out for a test.

The taut cotton sails and decade-old manila lines squealed in protest as the old boat surged to planing speed. Minutes later, there was a loud BANG as everything tore loose, and suddenly we were in the drink. Thank goodness the damage was limited to shredded sails and broken ropes—things we could repair.

My friend and I learned a lot about boats that summer. There was no money for new

equipment, so we spent our free time sewing canvas and splicing ropes. When our work was complete, we took *White Lightning* out for a genteel show-off run. Every line was coiled and stowed and proper knots were used throughout. We ended our sail by smartly coming about within inches of the pier—at which point my friend casually stepped ashore, mooring line in hand, and in a blink, set a perfect clove hitch on the upright post. *White Lightning* stopped elegantly, within a millimeter of the rubber tire bumpers on the dock. Our friends on shore applauded loudly.

As the years passed, I lost my interest in sailboats and became mildly interested in powerboats and passionate about canoes. I've had to learn new ropes—nylon, Dacron, polyethylene and Kevlar are not like the manila lines on old *White Lightning*.

But with rare exceptions, the same knots and hitches are used to tie them. The good news is that the knots I know will last a lifetime. Unlike my computer, they won't need upgrades!

Do you look like a pro when you tie to a dock? Does your car-topped canoe stay put in wind? Can you tie ropes together so they won't come apart under load? Are you able to secure a load into your boat or truck so it won't shift with the waves or the road?

Here are three classic boating knots plus a unique pulley-hitch you'll want to learn!

Clove hitch

This popular hitch is used for mooring boats to piers and pilings and to secure ratlines to the shrouds of sailboats. It's also the most common "starter" knot

Clove hitch

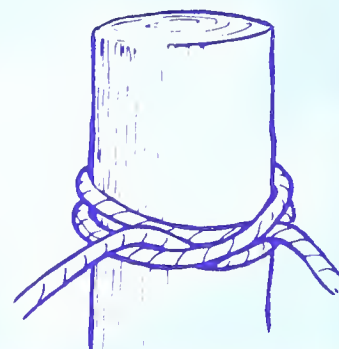
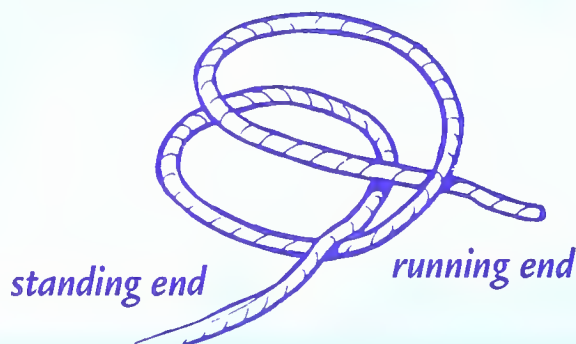
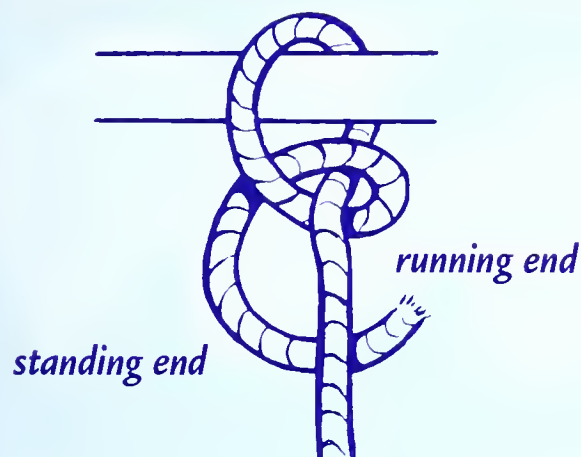
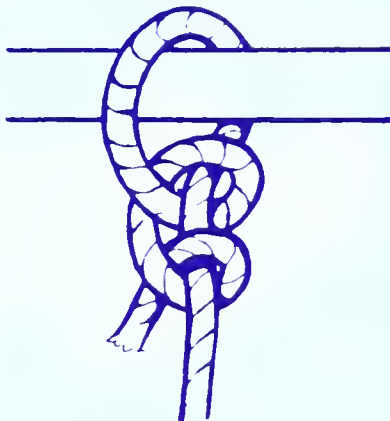


photo: Cliff Jacobson

One half hitch



Two half hitches



for lashings and the one my friend used to tie *White Lightning* to the dock. You can make the clove hitch by taking a double pass around an upright, or you can form it in two loops.

The advantage of the clove hitch is that it can be formed at any point along a rope simply by superimposing two loops. It can also be easily snugged or loosened by pulling or pushing on the ends of the rope. This feature saves considerable adjustment time, especially with a long rope. Next time you go through a U.S. Army Corps of Engineers lock and dam, check how the workers tie your boat. Ten to one it's a clove hitch!

Two slippery half-hitches and a round turn

This knot is the most secure way to tie a boat to a ring or bar. On a short rope, it's an honorable substitute for a clove hitch, and the one you'll want to learn if you don't want to clutter your brain with needless knots.

The "round turn" is simply another loop on a bar or ring. The round turn on the rail takes the stress off the knot and provides extra security. It also reduces abrasion and therefore prolongs the life of the rope. Most boaters eliminate the round turn and use two simple half-hitches. Learn the knot both ways.

Sheet-bend

Use this knot to tie two ropes together. It works even when rope sizes and materials are very dissimilar. John Smith, captain of the *Mayflower* (1627), considered the sheet-bend one of the four most important sailing knots; the others were the bowline, sheep-shank and wall knot (which isn't used today). The sheet-bend gets its name from its intended purpose—to mend a broken sheet (sail) line when there's no time to splice.

Some years ago, a friend won a \$5 bet when he used a sheet-bend to tie a broken waterski tow rope. When the slippery polypropylene line snapped, the ski-boat captain bet my friend he couldn't tie the two ends together so they'd hold. My friend tied a "double sheet-bend" and skied the rest of the day on the repaired line.

It's important that the bitter (free) ends of the sheet-bend be on the same side, as illustrated, otherwise the knot may be unreliable. Use the single sheet-bend on conventional nylon and Dacron ropes; the double sheet-bend is more secure on slippery polypropylene. When rope sizes differ greatly, the smaller-diameter rope should be used as the "working rope" to make the turns around the larger rope.

Power cinch (trucker's hitch)

Use this powerful "pulley hitch" to snug your canoe on a car, lash a load into your boat, secure a box in your truck, rig

a clothes line, guy a tent, etc. The power cinch is so practical that you'll wonder why you never learned it. Once mastered, you'll change all your friends' attitudes about knots.

Begin the power cinch by forming a simple overhand loop. Be sure to pull the free end of the rope—not the secured end—through the loop, as illustrated. If the loop is formed exactly as described, a simple tug on the rope will eliminate it.

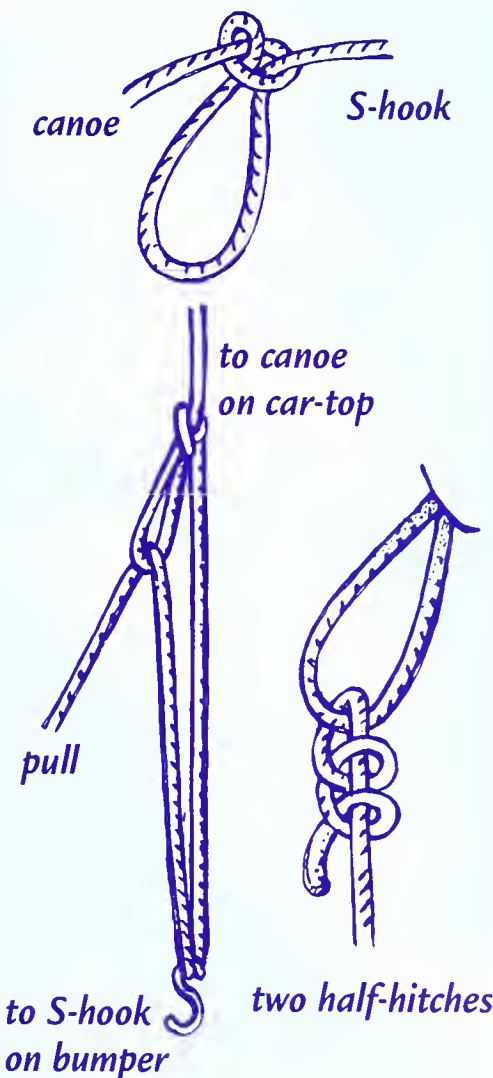
If you are tying a boat on top of a car, tie the long single line to the boat's bow or stern (use two half-hitches) and run the double line through a steel S-hook on the car's bumper, as shown. Now apply power. You have a powerful pulley with a 2:1 mechanical advantage!

If you want a reliable knot, complete the hitch by tying a double half-hitch around one or both lines.

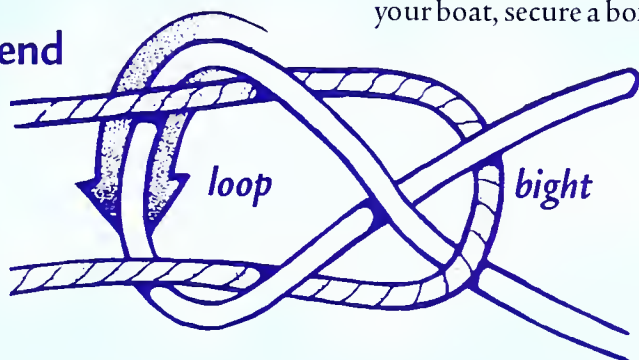
Outdoors handbooks define dozens of knots. Sailing books describe hundreds! Passionate boaters may want to add the bowline, fishing knot and one or two more to this list of four. Only serious sailors, mountain climbers and stubborn knot-heads need more than these.



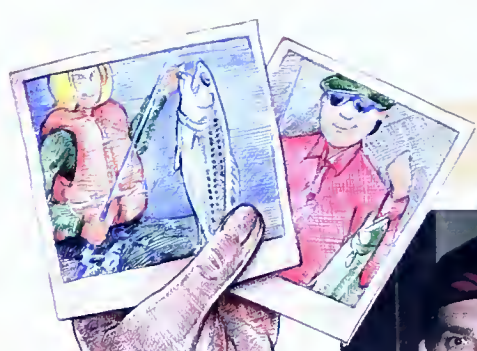
Power cinch



Sheet-bend



Cast & Caught



Richard Kalp, Acme, hooked this brown trout while fishing the Youghiogheny River near Ohiopyle. The fish weighed 7 pounds, 9 ounces and measured 27 inches in length.



Alan Heller, Franklin, caught and released this 18.5-inch smallmouth bass in Elk Creek, Erie County.



This largemouth bass was hooked by Terry Psimer, Kenmore, Ohio. The Lake Wilhelm fish, caught on a jig, weighed 5 pounds and measured 21 1/4 inches in length.



William Phillips, Silver Spring, MD, used a crankbait to convince this largemouth bass to strike. The Rose Valley Lake fish weighed 5 1/2 pounds and was 21 1/2 inches long.



Thirteen-year-old Clifton Forker, of Linglestown, caught this largemouth bass in his favorite fishing hole. The bass weighed 6 pounds and measured 23 inches. Nice catch, Cliff!



Bobby Horne caught this 13-inch tiger trout in Chester Creek. A tiger trout is a cross between a brook trout and a brown trout.



Carnegie resident James Chappel fooled this largemouth bass with a plastic worm. The fish was 22 1/2 inches long and weighed 6 pounds.



Daniel Edgar, Verona, earned a Senior Angler Award for this 20-inch smallmouth bass he hooked while fishing Lake Erie. The fish weighed 5 pounds and was caught on a jig-and-minnow combo.

Memories To Last A Lifetime



Eight-year-old Dwayne Bauder, of Bethlehem, was fishing Monocacy Creek when this brook trout grabbed his minnow. The fish measured 20 inches long and weighed 4 1/2 pounds. Nice job, Dwayne!



Eugene Deutsch hooked this 12-pound, 4-ounce brown trout while fishing Beltzville Lake. The fish was 28 inches long.



Mark Vega, Bronx, NY, earned a Junior Angler Award for this largemouth bass. The fish, caught on a worm, weighed 4 pounds, 1 ounce and measured 19 inches. Nice job, Mark!



Norman, Oklahoma resident Steve Hull caught this walleye in Lake Erie. The fish weighed 10 pounds, 12 ounces and was 31 1/2 inches long.



Warren Strouse, Collegeville, shows the mount of the 4-pound smallmouth bass he caught in Perkiomen Creek near Schwenksville. The fish measured 20 inches long.



John Smith III, Elizabethtown, was fishing Kettle Creek, Clinton County, when this rainbow trout hit his lure. The fish weighed 5 pounds, 8 ounces and was 24 1/2 inches long.



Paula Lasecki, Harrisburg, hooked this 19-inch golden rainbow trout while fishing the Yellow Breeches Creek near Bowmansdale. The fish measured 19 inches in length.



Stephen Staron, Montoursville, caught this walleye at Hills Creek State Park Lake, Tioga County. The fish was 29 1/2 inches long and weighed 8 pounds, 6 ounces.

Bass Fishing from the Shoreline

by Mike Bleech

Winter had broken early in the Allegheny Highlands, providing a longer-than-usual window of opportunity for bass fishing before the season closed. Most local anglers were not yet thinking about fishing because the Allegheny River was running high and muddy. But my two fishing buddies and I had no intention of waiting for the start of trout season. Armed with a bucket of lively shiners, we scrambled down the river bank to a quiet backwater where flooded brush offered largemouth bass perfect habitat.

With the shiners rigged under bobbers, we began flipping them alongside cover. Minutes later we were all hooked to bass. It was one of those days when everything went right. Through the morning, I don't think 15 minutes ever went by without at least one of us hooking a bass. Light snowfall that began late in the morning did not dampen our spirits a bit. In fact, it added to the joy of the morning. We knew there were a lot of bass anglers in the vicinity who would have loved to have been in our position, but they just didn't think of it. They were thinking about launching their boats.

Who says you need a 150 hp bass boat to catch bass? Nothing against the bass boat crowd, quite often I am among them, but the print and television media give the impression that you can't have fun fishing for bass unless you zoom over lakes at 60mph, scan the water with high-priced electronics, and fling lures designed by bass tournament pros. It just isn't so!

Nor is it true that all of the best bass anglers pilot the big bass rigs. Some of the best bass fishing in Pennsylvania is out of reach of big bass boats, on remote sections of creeks and ponds where the only access is on foot. This is a quite different slant on bass fishing today, though 30 years ago it was the way most people fished. Doing it today is a sort of escapism, recalling a more serene outlook on fishing.

This does not mean fishing on foot is inferior in any way, neither in challenge nor excitement.

Lake Marburg, Codorus State Park, York County. Bass fishing on foot requires as much fishing skill as fishing from a boat. Knowing which waters hold bass isn't enough. You have to know precisely where to fish in those waters because you don't have the mobility that a boat provides.



Bass fishing on foot requires as much fishing skill as fishing from a boat. More so when you consider the difference in mobility. Anglers on foot can't possibly cover as much water as anglers in boats. They can't move as much, nor can they reach as much water. Anglers on foot are limited by walking speed, posted property, impassable barriers, mean bulls, and many other things. So they cannot afford poor fish-finding skills. Knowing which waters hold bass is not enough. You must know precisely where to fish in those waters.

Manmade ponds, beaver ponds

Largemouth bass are well suited to pond life. You are more likely to catch a trophy size largemouth in a 3-acre farm pond than in one of our biggest lakes.

Most manmade ponds and beaver dams have the same basic bottom configuration (see Figure 1). The deepest water is near the dam, along a flooded creek channel or ditch. The bottom slopes steeply from the shore along the dam, and maybe along the sides of the lower end of the pond. The upper end is shallow, with more gently sloping bottom. Beaver dams and many manmade ponds are fed by small streams. Some farm ponds are fed by springs or run-off.

Once winter loosens its grip, active bass move into the warmest water, usually shallow water at the head of the pond. Another situation to watch for is warm pockets on the windward sides of larger ponds. Surface water warms relatively fast. Steady wind will push surface water, and it will accumulate in pockets, or small bays along the windward shore. Feeder streams can bring in either warmer or colder water. For these reasons, a thermometer can be one of your most helpful tools. Concentrate your fishing in the warmest water you can find.

Bass are usually not very aggressive in cool water, so your lure or bait should be something they can catch without a lot of effort. If you have your sights set on a big bass, a lively shiner about 6 inches long is probably the best bait you can use. Fish it under a bobber, close to the bottom. A few of the better early season artificial lures are spinnerbaits with single Colorado blades; floating minnow lures such as the Thunderstick, Rapala Minnow, or Rebel Minnow; and vibrating, lipless crankbaits such as the Cordell Spot or Rattletrap.

photo: Mike Bleech

MAN-MADE PONDS AND BEAVER DAMS

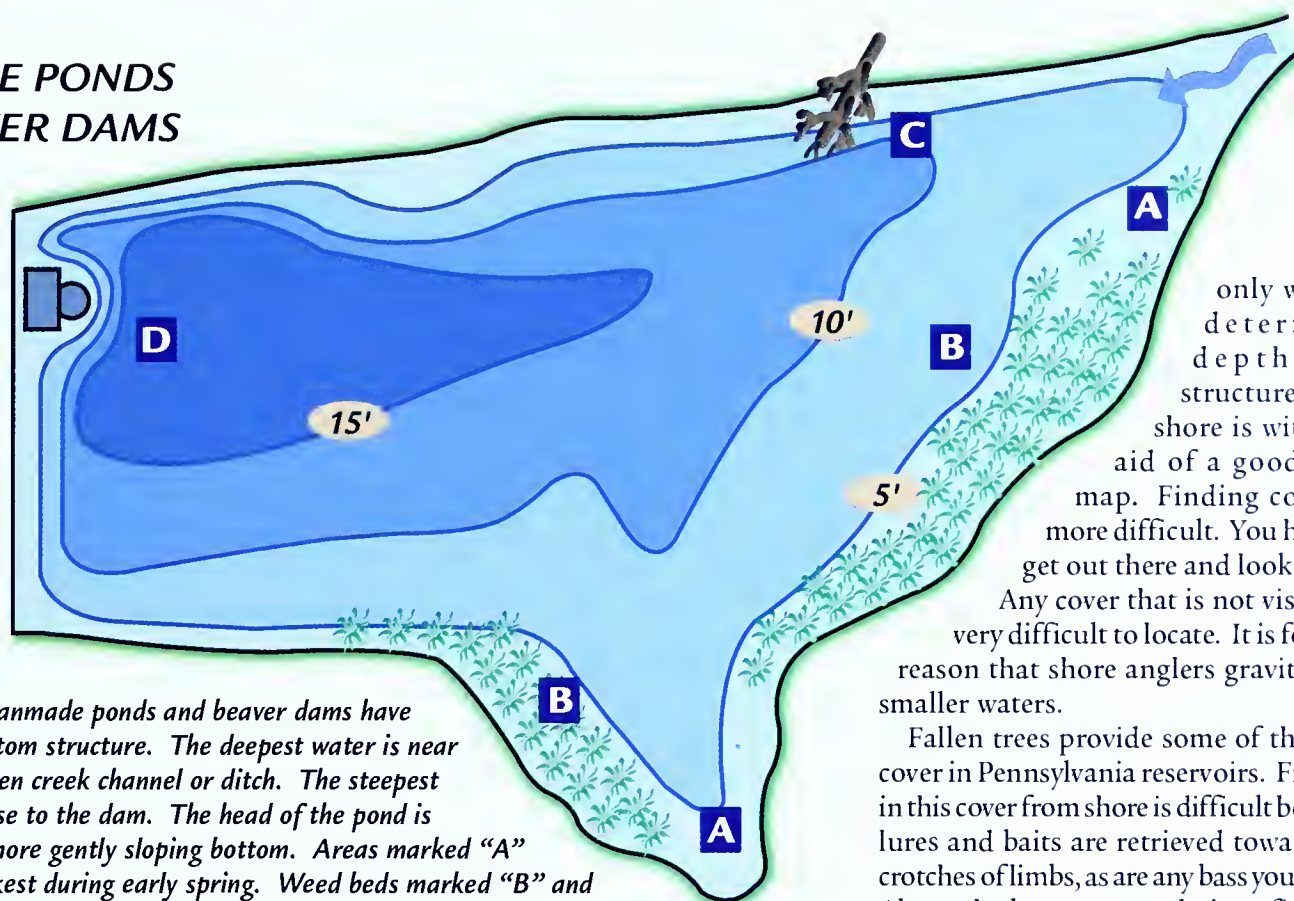
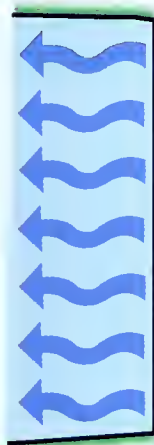


Figure 1. Many manmade ponds and beaver dams have the same basic bottom structure. The deepest water is near the dam, at a sunken creek channel or ditch. The steepest bottom slope is close to the dam. The head of the pond is shallower, with a more gently sloping bottom. Areas marked "A" tend to warm quickest during early spring. Weed beds marked "B" and the fallen tree marked "C" are excellent largemouth bass cover through summer. If the pond gets very warm during late summer, and again from mid-fall through winter, the deepest area, marked "D," might hold most of the bass.

These same methods might work any time in open water. But by the time the water temperature climbs into the 50s, bass should show interest in topwater lures. Since this is such exciting fishing, don't let it pass. Peak time for topwater lures is morning, evening and night, but give it a try any time. Start by retrieving topwater lures close to the shore, then fan-cast the pond.

Bass usually strike a topwater lure the first time it gets within their striking zone, if they are going to strike it. So once you have covered an entire pond, switch to another lure. If you miss a bass on a topwater lure and it does not strike that lure again, cast back to the same place with another lure. If that doesn't work, try another. Don't give up easily on a bass that has already demonstrated aggression.

During summer, largemouth bass tend to be more cover-oriented. Fish your lures and baits close to weeds, brush, logs, anything that bass might use as cover. Get right into the cover with snag-resistant lures. Texas-rigged plastic worms are probably your most useful lures. In ponds with extensive, thick weed beds, topwater slop lures might be the only way to fish from shore.

Some ponds get very warm during August and early September, and bass spend a lot of time then in the coolest water

they can find. This is generally the deepest water in the pond, and in a sunken feeder channel. If the bass are finicky, try small plastic worms, about 4 inches long, rigged Carolina style.

Early during fall, ponds turn over. The water looks sickly at this time, and fishing is poor for a week or so. But after this period, fishing picks up until the ponds freeze. Rely mostly on live minnows once the water temperature drops into the 40s, and fish slowly.

The same sequence of lures and baits is a good guideline at any of Pennsylvania's largemouth bass waters.

Larger lakes, reservoirs

You can walk around a pond to find the best fishing water. But at a large lake, you have to be able to predict where the best fishing will be.

As with ponds, active bass will be in the warmer water during early spring. These spots are usually the heads of reservoirs, and in shallow water at the heads of bays in both natural lakes and manmade reservoirs.

Bass spread around the lake more during summer. The better shore fishing areas are typically where cover, relatively deep water, or irregular structure is close to shore. Without extensive experimenting by dragging lures across the bottom, the

only way to determine depth and structure from shore is with the aid of a good lake map. Finding cover is more difficult. You have to get out there and look for it. Any cover that is not visible is very difficult to locate. It is for this reason that shore anglers gravitate to smaller waters.

Fallen trees provide some of the best cover in Pennsylvania reservoirs. Fishing in this cover from shore is difficult because lures and baits are retrieved toward the crotches of limbs, as are any bass you hook. About the best you can do is to fish live minnows suspended over sunken limbs with bobbers. Cast from as far away along the shoreline as you can so you can pull bass away from the limbs.

Docks are usually private property. But if you own a dock, and perhaps have friendly neighbors who allow you on their docks, fish around and under them carefully. Cast under a dock from shore before stepping onto it. Cover the water under the dock thoroughly, getting a plastic worm, jig or spinnerbait on all sides of each dock leg.

Wooden docks are usually more attractive to bass than metal docks. Docks in the water year-round are usually better than docks that are removed every winter.

Many natural lakes and some reservoirs have extensive weed beds adjacent to the shoreline. Fan-casting weedless topwater lures over weed beds is a very reliable fishing pattern. Strong line, at least 14-pound test, may be necessary to haul a bass through the weeds.

During fall, bass tend to congregate by steep structure that leads into relatively deep water. Such places may be difficult to locate, but once you find a fall bass honey hole, fishing can be fantastic. On a lake map, look for deep water close to shore. Then follow this area until the shallow water broadens. Right along the edge of the steep bottom and the more gentle slope is often a fall hotspot. In reservoirs, this situation often occurs where a sunken creek or river channel

swings away from shore, or where a road bed enters the water.

Rivers, creeks

Just try to find a better way to spend a hot summer morning or evening than wading in sneakers and shorts, fishing for acrobatic smallmouth bass in one of the numerous creeks and rivers that flow through Pennsylvania. The water might not seem cold when you first get your feet wet in shallow water, but by the time the water reaches the soft flesh behind your knees you will feel the oppressive heat leaving your body. Your whole attitude about life will change.

Some of our creeks and rivers support good populations of big smallmouths. Some are loaded with smallmouths less than a foot long. Even though those waterways that give up the big bass get most of the attention, your chances of having a great day of fishing are at least as good at one of those creeks that are loaded with small bass. The trick is using the right tackle. A 10-inch smallmouth is a great scrapper when it is caught with ultralight spinning gear or light fly fishing tackle, and you might catch 50 during an evening at one of our better creeks.

Please pinch down the barbs of your hooks whenever you fish any of these waters where you expect to release a lot of bass. What's the difference if a few throw the hook during one of their cartwheeling leaps?

Creeks and smaller rivers offer an advantage to bass anglers on foot. You can read them without the need for sonar. Polarized fishing glasses that cut surface glare can help.

Smallmouths move around quite a bit in creeks and rivers, depending on the nature of the waterway. High flow can either spread the bass out by creating more suitable habitat, or congregate the bass by creating too much unsuitable habitat. Oxygen problems can cause bass to congregate below riffles or tributaries during mid-summer to late summer. Bass anglers have to be able to identify or react to situations like these.

It is more common, however, for smallmouths to occupy the same general areas throughout the bass fishing season. The same gravel shoal bars and flats where they spawn during early June are evening feeding areas during July and August. During fall, the smallmouths are generally along dropoffs at the edges of the bars and flats.

Bass Fishing from the Shoreline

If you are a trout angler, reading smallmouth bass water should be easy. Often, the only difference between trout water and smallmouth bass water is temperature. Bass can thrive in water that is lethal to trout. Smallmouths generally don't inhabit water as swift as the swiftest water trout use, nor do they inhabit streams as small as trout inhabit. Their niches certainly overlap, though.

Smallmouth bass are liable to inhabit any rocky, gravelly or sand-bottomed part of a creek or river except the shallowest or swiftest water. They are partial to areas with rock rubble bottom where crayfish are abundant.

During summer while water flow is low, smallmouths congregate in the deeper pools of creeks, or in deeper troughs of



*Pinch down your
hook barbs when
you fish
waterways where
you expect to
release your fish.*

otherwise long stretches of very shallow water. This is one of the better opportunities for anglers on foot because you can be within reach of numerous bass without moving far.

A skillful live bait angler can catch more bass than anyone else on a river or creek during summer while the water is low and clear, especially during daylight hours. Crayfish, hellgrammites, stonerollers, "riffle runners" and stonecats are some of the locally favorite baits on Pennsylvania waters. Find out which is the favorite on the water you fish. It can make a big difference.

Any of these live baits should usually be fished with as little weight as possible—just enough to drift the bait close to the bottom. An exception is still-fishing at night with soft-shell crayfish. This is a good bet for larger smallmouths.

Perhaps the best artificial lure for river and creek smallmouths during summer is a leadhead jig with a natural-colored body. During spring and fall, minnow-shaped crankbaits are excellent. Try a stop-and-go retrieve, imitating an injured minnow. Topwater lures are usually most productive during summer while the sun is not in the sky, or during late spring and mid-fall.

Some Pennsylvania rivers and creeks also hold largemouth bass. Look for them in the slow-moving, soft-bottom stretches, especially where there is some form of wood cover. Even in pools with very mild current, expect largemouths to be out of the current. Fish close to cover with Texas-rigged plastic worms, spinnerbaits or lively minnows under bobbers.

Some rivers and creeks that are not noted for largemouth bass hold fishable numbers at select locations, particularly those that have largemouths in lakes somewhere in their watershed. Look for them in quiet backwaters during periods of high flow. In smallmouth creeks, look for largemouths in those long, soft-bottom stretches that you usually pass over when you are fishing for smallmouths. Just remember to switch to largemouth tactics, flipping lures or baits in and around cover.

Largemouths often escape notice in waters where local anglers think in terms of smallmouths because their niche is so different.

There are plenty of good times to be had bass fishing on foot. Whether you do not have a boat, or you are a boat owner looking for a different challenge, try it this year.



DO'S and DON'TS for CROWDED Launch Ramps



Blue Marsh Lake, Berks County

About this time of year, many boat ramps are crowded. Suppose every time you launched your boat, though, no one tied up the dock, and each time you retrieved your boat, the ramp was clear and you waited only momentarily, if at all, for your turn. Enjoying this situation isn't impossible. It just takes a little application of the Golden Rule and some launch ramp smarts when accesses are crowded. Here are six ideas we can use to make launching and retrieving tolerable for everyone.

- Get to know your favorite accesses so you can plan your launching and retrieving for maximum efficiency. Boaters tie up launch ramps because they don't realize that many access sites have specially built areas for launch preparation and for tie-down after retrieval. These places are called rigging and derigging areas. If we used these places, more boaters could launch and retrieve, and a long line at the ramp itself could be shortened.

- Before you launch your boat at an unfamiliar access, look the place over and decide how you're going to launch and

retrieve for maximum speed and safety. Is there a dock at which you can get your gear ready immediately after launching and where you can secure your equipment before retrieving out of the way of those who are launching and retrieving? Will the wind or current make maneuvering your rig for launching and retrieving difficult? If you launch on the Delaware River, will a tide change make you alter your launching and retrieval scheme?

- If a launch site doesn't have rigging and derigging areas, prepare for launching in a parking space. As soon as you retrieve your boat and get it on the trailer, attach the bow hook and make your way slowly to the parking area. There, away from others trying to launch and retrieve their boats, work with your equipment and get ready to leave.

Remember that the ramp itself is only for launching and retrieving, not for preparing your boat and gear.

- Before you call it a day and return to the ramp to retrieve your boat, put your tackle away, prepare mooring lines and get everything ready that's coming out of the

boat for storage in your tow vehicle. Don't perform these tasks on the ramp. You won't tie up the ramp this way, and you'll get home faster. In addition, when you launch the next time, organizing your gear this way can help you get under way faster.

- If ramps have docks, where you can wait for friends or complete your boating preparations, use them instead of waiting on the launch ramp. You can also beach your boat on smooth shorelines at the launch site either to wait for friends to board or to wait your turn to retrieve your boat.

- Make a written checklist for launching and retrieving. You increase your efficiency by getting your gear ready for use and by storing items quickly. A routine governed by a checklist increases your efficiency and lets you spend the least amount of time at the ramp.

Applying these ideas before you launch can give you and everyone else at the ramp more time on the water. Crowded launch sites don't always have to mean long waits and frayed nerves. It's up to us.





City Catfishing at Night

by Seth Cassell

Most of the major cities in the East can be found adjacent to a large water source. In the past, the water near these industrial hubs was often polluted and sometimes void of any aquatic life. But now, in most urban waters, pollution has been curtailed and water quality has improved to the point at which gamefish thrive.

Although not a glamour species, catfish are doing particularly well in these urban environments, and many anglers are taking advantage of the fishing opportunities they present. For many city fishermen, urban catfishing offers a reprieve from the hectic urban life without having to travel a long distance. It's tough to beat—access is easy, equipment is inexpensive, the fish are big, and best of all, they're easy to catch.

According to Commission Area 6 Fisheries Manager Mike Kaufmann, catfish do well in urban rivers for several reasons. For one, catfish like the storm-water and treated sewage discharges that flow into rivers near urban centers.

"These discharges bring catfish a lot of food such as nightcrawlers. I even once opened up the belly of a catfish that was taken near a discharge and found an adult cardinal! This is an example of the variety of food they take."

Kaufmann also notes that these discharges are also typically warmer than the main river flow, which can be attractive to catfish during cooler months.

The deep pools near bridges are another reason for catfish liking urban waters. When bridge abutments are constructed, the river is excavated, and in the process, the river becomes deeper. Catfish like to use these deep pools as holding areas during the day when they're not feeding. Most urban rivers have several bridges with this environmental feature.

Catfish are one of Pennsylvania's biggest fish, but they're also one of the easiest to catch, as they're not too picky about what they eat. Most of the time they feed by smell. However, they're not immune to striking something that they find visually appealing.

As mentioned above, catfish usually spend daylight hours hunkered down in the bottom of a deep pool or along an undercut bank. They do feed during the day, but it is often to a limited extent, especially on sunny days.

On overcast days, catfish are more active. They're also more active during the day during high and discolored river conditions.

Catfishing gear is inexpensive. You can use just about any type of set-up. For most Pennsylvania rivers, a medium-action spinning rod with 8- or 10-pound test is fine. Anglers who are specifically going after big catfish, or if you work an area where catfish are larger than normal, a bait-casting rod with heavier line would be better. After all, in Pennsylvania, channel and flathead catfish are known to exceed 15 and 30 pounds, respectively.

Many anglers have taken a liking to fishing for "cats" with ultralight tackle. A small trout rod can certainly make a fight with a dandy catfish more interesting. Just remember that light tackle means you have to wear the fish out a great deal before bringing it to the net. So anglers who want to practice catch-and-release should think about using more conventional tackle.

Which baits are good for catfish? The question should be, which baits *aren't* good for catfish! Catfish take just about anything you can throw at them. Many catfishermen use all sorts of "stink baits," either homemade or commercial. Al-

though these certainly are productive catfishing baits, they aren't necessary. Nightcrawlers, garden worms, live minnows, dead minnows, corn and cheese all make fine catfish baits. As Commission Area 7 Fisheries Manager Larry Jackson says, "They run the gamut from rotten meat to taking white flies off the surface."

During the day, with the aid of splitshot, slowly work your baits in likely catfish holding areas. At night, because catfish are on the move looking for food, it is often best to leave your bait somewhat stationary.

Active fish will find the bait, and after that, it's just a matter of setting the hook and reeling it in.

One of the nice attributes of fishing rivers in urban areas is that access areas are usually easy to reach. Many cities have areas where anglers can park and fish. Also, for night fishermen, the city lights cast enough light to illuminate the water and make it easier to see.

Here's a look at some of the best urban catfishing areas in Pennsylvania. Drive in from the country, walk from your downtown apartment, or stop by after work or during a lunch break—the catfish are there!

Harrisburg

Although the mighty Susquehanna is one of the most productive smallmouth fisheries in the Commonwealth, it also boasts a fine population of channel catfish. Anglers can find excellent fishing anywhere near the Capital City.

One noted location is near the Fort Hunter access, located on Front Street, north of the Rockville Bridge. In this area, anglers can fish by the shoreline, boat, and in some places, by wading.

West Fairview is another good location. This access is located at the confluence of



anglers in Wilkes-Barre at the Market Street Bridge. Anglers can use a small boat or fish off the dikes along the river.

Philadelphia Region

Area 6 Fisheries Manager Mike Kaufmann reports that the tidal section of the Delaware River is “excellent” fishing for channel catfish. Access areas are available throughout the city section of the river. Be aware of the consumption advisories on channel catfish from Yardley down river to the state line.

Farther west, Kaufmann recommends anglers try the Schuylkill River near Phoenixville. There is a consumption advisory on channel catfish from the Black Rock Dam above Phoenixville to the mouth.

The Schuylkill River also boasts a good catfish population near Reading. Here, there is an abundance of deep pools that attract catfish. Access in Reading can be found north of the city at Felix Dam.

These are just a few of Pennsylvania’s urban catfishing waters. Many towns across the commonwealth have creeks that contain catfish, especially bullheads. These catfish can tolerate poorer water quality than flatheads and channels, and can be found in smaller waters. Although they are smaller than the other two species, they are fun to catch, especially with light tackle.

Remember to be careful when handling catfish to avoid their spines. In areas where there are no consumption advisories, anglers may keep up to 50 catfish and there is no minimum. However, in areas of high fishing pressure, it is important to keep only what you plan to eat and leave the rest to catch again.



Conodoguinet Creek. An abundance of small and large islands breaks up the water flow and creates ideal holding places for all gamefish. This access is located on U.S. Route 11 north of Wormleysburg.

One interesting note about this area of the Susquehanna is that it has an outstanding white mayfly hatch in July and August. In late-evening, these flies cover the surface and the river’s fishes go into a feeding frenzy.

Although most flyfishermen target smallmouths, catfish can be taken off the surface as well. Take it from someone who has experienced it—there is nothing like feeling a big catfish on the end of a flyrod!

Pittsburgh area

Area 1 Fisheries Manager Craig Billingsley says the lower Beaver River from the confluence with the Ohio River up to the first dam at New Brighton is a good urban catfishing water.

“There are lots of catfish in the Beaver River,” he says. “Some nice-size channel catfish, too. I’ve seen some that were over 10 pounds.”

The lower Beaver River is approximately 200 feet across. On the east side of the river, a concrete walkway exists that anglers can fish off of. Don’t overlook fishing the tailrace area. Billingsley reports that catfish can be found there in good numbers.

“Catfishing doesn’t get too much better than at Point Pool,” says Area 8 Fisheries Manager Rick Lorson. “You can get

a good catch rate there anywhere you can gain access.”

Point Pool is where Pittsburgh’s “Three Rivers” join together. There, anglers can find channel catfish and some flatheads. According to Lorson, channel catfish over 20 pounds and flatheads over 25 pounds can be found in this pool.

Anglers can find access from Point State Park. Please note the Consumption Advisory on this water in the *Summary of Fishing Regulations and Laws*.

Pittsburgh anglers may also want to look into North Park Lake, located north of the city near McCandless. Channel catfish are the main species there.

Williamsport

Urban fishing opportunities are available in this area along the West Branch of the Susquehanna River, where channel and bullhead catfish are available. Northcentral Law Enforcement Region Manager Paul Swanson suggested anglers try the Williamsport Pool.

“Find the backwater or slow-moving areas. These are the primary feeding areas and are the best fishing spots,” he says.

Wilkes-Barre

The upper reaches of the main branch of the Susquehanna River provide Wilkes-Barre-area anglers with opportunities to catch channel catfish. Here, the river is characterized by long, slow-moving pools and short riffles. Access is available to

Anglers Currents

International Association Rewards PFBC

The Pennsylvania Fish and Boat Commission has received recognition for its work to build a coalition of citizens, organizations and businesses interested in preserving nongame fish and wildlife species in the Commonwealth.

The Excellence Award was presented to the Commission by the International Association of Fish and Wildlife Agencies.

The Fish & Boat Commission, along with its sister agency the Pennsylvania Game Commission, has been actively involved in building grassroots support for the Teaming With Wildlife initiative, resulting in the second largest state support coalition in the nation. For more information on Teaming With Wildlife, contact Lisa Williams at 814-359-5162.



Fishin' from the Kitchen Catfish in Mushroom Cream Sauce

by Phil Hanyok



photo: Phil Hanyok

2 large catfish fillets
(about 1/2-pound each; serves 2 people)
2 Tbs. butter, plus 1 Tbs. butter
2 Tbs. finely chopped shallot
(more if desired)
3 large mushrooms per fillet,
sliced paper-thin
1/2 cup half & half (or cream)
fresh chopped parsley to taste

Rinse the fish fillets under cold water and pat them dry with a paper towel. Over medium heat, melt two tablespoons of butter in a non-stick pan. Fry the fish fillets in the butter uncovered, flipping the fillets when they are cooked halfway through.

Meanwhile, in a separate pan, melt one tablespoon of butter over medium heat and saute the finely chopped shallots until they begin to turn transparent. Add thinly sliced mushrooms and saute until nearly all the liquid has evaporated. Reduce the heat and add half & half to make enough sauce (about 1/4 cup per fillet). As the sauce thickens over low heat, add chopped parsley. Remove the sauce pan from the heat.

Place one fish fillet on each plate. Discard the cooking butter. Spoon the mushrooms and cream sauce on top of the fish. Add more half & half or cream to keep the mushrooms in a creamy sauce.

Serve with cooked orzo or rice and your choice of steamed vegetables.

Purdue Contributes to Coop Nursery Grant

Andy Melick (left), Purdue Farms, Inc., manager for the Catawissa (PA) plant, and Cathy Maynard (center), Purdue's marketing manager, receive a 1994 Trout Print from Commissioner Donald K. Anderson. The Commission thanked Purdue with the trout print for a \$1,000 contribution to the Commission's Coop Nursery Grant program. The contribution matches funds that the Commission is giving to 19 selected nurseries. Nursery sponsors submit grant proposals for facility improvements. Commissioner Anderson made the presentation at the Commission's May 1997 meeting.

New Members on Boating Advisory Board

Governor Tom Ridge has appointed two new members of the Boating Advisory Board.

Steve Ketterer of Harrisburg and Ed Matheny of Greensburg have been appointed to the Commission's Boating Advisory Board (BAB). Matheny is a retired manager of governmental affairs for Allegheny Power, where he worked for 44 years. He is a past president of the Monongahela Memorial Hospital, and past chairman of the Monongahela City Planning Commission. He replaces Clayton "Red" Buchanan, who served nearly two decades on the Board.

Ketterer is a tax and enforcement administrator for the city of Harrisburg. He is Commander of River Rescue of Harrisburg, and a member of the Keystone Aquatic Club and the Pennsylvania Boating Association. He fills the BAB slot formerly held by Gary Babin.—Dan Tredinnick.

Berks County WCO is Named Officer of the Year

John V. Sabaitis has been named 1996 Officer of the Year for the Pennsylvania Fish and Boat Commission. Sabaitis, a six-year Commission veteran, received the award at the recent Northeast Fish and Wildlife Conference.

Sabaitis began his association with the Commission as a Deputy Waterways Conservation Officer in Schuylkill County. After six years as a DWCO, he was hired

as a fulltime Waterways Conservation Officer. He now serves in Berks County. He has established strong working relationships with other enforcement and environmental agencies. He has also developed an effective program to deal with pollution/disturbances while gaining compliance from violators. This high level of cooperation has resulted in a significant improvement to the area's waterways.

Bureau of Law Enforcement Director Edward W. Manhart praised the award winner's exceptional attitude and approach to the multi-faceted duties of a Waterways Conservation Officer. "John Sabaitis' efforts go above and beyond the call of duty. His diligence in serving the interests of the angling and boating public is a credit to the agency."—Dan Tredinnick.



The mission of the Pennsylvania Fish & Boat Commission is to provide fishing and boating opportunities through the protection and management of aquatic resources.

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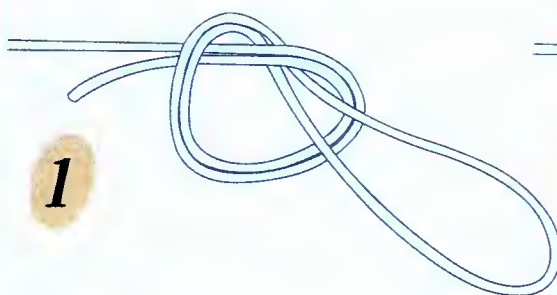
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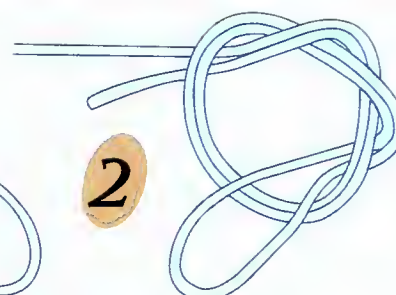
PFBC World Wide Web Site:

<http://www.state.pa.us/Fish>

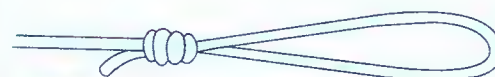
Angler's Notebook by Seth Cassell



1



2



3

The surgeon's loop is a knot that every angler should know. It can be used in dozens of fishing situations, such as making a connection loop at the end of a leader. This easy-to-tie knot can be accomplished in three short steps. First, double the end of the line for at least 4 inches. Then make two overhand twists to form a loop. Pull tightly and clip the tag end.

Early autumn can be an excellent time to be on the streams trout fishing. The cooler water temperatures make trout more active. Anglers who fish streams where wild trout occur should be mindful that this is the time of year when they spawn. Anglers should pay careful attention when wading not to disturb any spawning beds.

Many waterways in Pennsylvania hold several species of trout, including lake trout. Related to Pennsylvania's native brook trout, they can sometimes reach lengths of 3 feet. Lake trout have an olive-colored body with whitish spots along the body. A good way to identify one, though, is by its deeply forked tail.

Fly-casting can be difficult to master, especially for the beginner. When practicing, it is important not to start false-casting with too much line. Start with very little, and slowly release more line as you make your false casts. Beginning the cast with too much line is a surefire way to get frustrated—and snap your line.

As the water temperature gets colder, neoprene waders are not only more comfortable, they are also safer than standard rubber boot-feet. Because neoprenes fit tighter, they create less drag, allowing the angler to move through the water more easily and safely.

When a lake becomes murky, it can present some tough fishing situations. When fishing for largemouths under these circumstances, concentrate near the banks and weed beds where it is shallow enough for light to penetrate. Use big, gaudy baits that make enough noise to attract the fish in the turbid water.

Marabou, made from domestic turkey feathers, is an excellent material for making lures and flies. In water currents it moves just like a baitfish's tail. The material can be purchased in many colors and can be affixed to poppers, streamers, spinners and many other types of lures for added realism.

illustration: Ted Walke

Anyone who uses an aluminum boat often will sooner or later be faced with needed repairs. This is especially so if you're accustomed to hauling it in and out of places that aren't accessible via paved launching ramps, or you make long runs across open water when the going gets choppy. At first it starts with a small leak or two, just enough to require a little bailing once or twice during the day. But there's one absolute truism when it comes to aluminum boats: All leaks only get worse with time.

Usually the source of this hopefully minor problem is one or more loose rivets below the waterline. But in a more serious situation it could be a puncture or gash. As disturbing as any of these might seem, the solutions really aren't that difficult or expensive. And you can usually make the repairs yourself.

Aluminum flexes with use. Rivets in the area of greatest stress work loose. Water begins to seep in. Eventually it gets so bad that it has to be fixed. Then you have two choices: (1) take it to a shop and have it fixed, or (2) do it yourself. Surprisingly, you can often go with the second option and get the job done with far less trouble than you might think. And you can also save more than a few bucks in the process.

Unless you have a long crack in a chine or otherwise damaged some critical structural part of the hull, you can almost always fix the problem without resorting to a high-priced shop. This includes not only leaky rivets, but also punctures, holes and gashes.

Leaky rivet

A leaky rivet doesn't mean automatic replacement. If it's only loose—not deformed or badly bent—and the holes in the metal plates through which it passes haven't been considerably enlarged, the odds are it can be tightened with a hammer and a small block of iron or steel to act as an anvil (the "anvil" should be a little heavier than the hammer).

Obviously, a second hammer that's heavier or the head of an ax would do. The hammer should be at least a medium sized ball peen type.

How to Repair your Aluminum Boat

by Bob Stearns

Hold the anvil against the inside end of the loose rivet. Use the flat head of the hammer to start tapping gently on the head of that rivet. Keep this up until the rivet seats tightly. Most definitely DO NOT attempt to retighten the rivet with several hard blows. This could loosen it further or deform it beyond repair. The leak would then only become worse, and you might even damage the hull.

If you cannot re-tighten the rivet satisfactorily, remove it using the procedure I'll cover shortly. Then you can replace it with a new rivet, or a bolt, nut and several large washers. I've used the nut-and-bolt system many times with great success, and it is especially practical

where only a few rivets must be replaced.

However, a word of caution. DO NOT use brass or bronze nuts, bolts and washers around salt or brackish water—they will cause instant and very damaging corrosion to the aluminum hull. The best materials for that environment are 5000 or 6000 series aluminum, or good stainless steel.

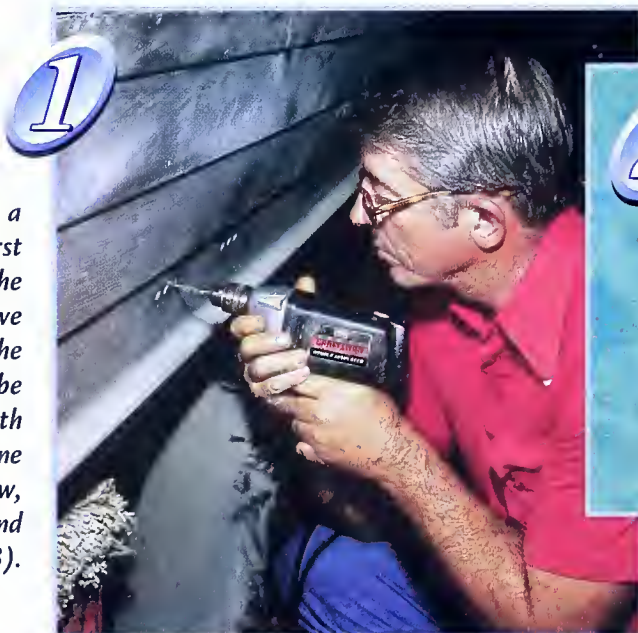
If using stainless steel, seat everything in a generous gob of silicone sealant to keep salt water and brackish water out, or you'll still get some corrosion in the aluminum where it touches the stainless steel. And skip the idea of using galvanized materials, whether in fresh or salt water—they will surely rust sooner or later (usually sooner, even in fresh water).

If you choose to use rivets, there are three types you can use. They are the solid aircraft type, that is, the type used to build your boat; open-end pop rivets; and closed-end pop rivets. Each has a special place in the scheme of things.

Solid rivets are obviously the strongest because they have a solid shaft. All pop rivets have hollow shafts but can still handle most jobs if used properly. The chief advantages of pop rivets are that they can be installed much faster than solid rivets, and they can be installed in "blind" areas where their inside ends cannot be reached—a situation that eliminates the use of both solid rivets and the nut-and-bolt solution.

To remove old rivets, use a hammer and a center punch to gently make a slight depression in the center of the rivet head. It's important that you take care to center the punch, otherwise the drill could wander off-center and enlarge the resulting hole out of round.

To replace a rivet, first drill out the defective rivet (1). The rivet can be replaced with a machine screw, washer and nut (2-3).



Mark leaky rivets with a black circle (above).



If you don't know the exact drill size needed, start with a bit that's obviously too small. Then work your way up a size at a time until the head lifts off the old rivet. Use the punch to gently push the rest of the old rivet out of the hole.

It's best, if possible, to replace the old rivet with a new one of the same size. If the hole is enlarged, use a larger size rivet that comes closest to a snug fit without being forced.

Solid aluminum rivets are usually sold by the pound, about \$20-\$25 for the sizes used in small boats. Their diameters are listed numerically, starting with $\frac{1}{16}$ " (no. 2), $\frac{3}{32}$ " (no. 3), $\frac{1}{8}$ " (no. 4), $\frac{1}{4}$ " (no. 8), and so on.

Thus, if your boat was built with no. 6 rivets (a typical size for small aluminum boats), you should replace the old rivets with new ones of the same size if the fit is still good. Otherwise, you might want to use a no. 7 or 8. It's a good idea to take the two pieces that made up the old rivet down to the supplier and let him help you choose the diameter and length of the replacements.

Solid rivets are available in a variety of materials: aluminum, monel, steel and brass. You want only aluminum. They are available as either soft (type A) or hard (type AD). If you don't have the special machinery needed to handle hard rivets, you should stick to type A, which you can install by hand.

They can be set in place with the same hammer-and-anvil method I outlined earlier. If you're fussy about appearance and don't want your new rivet heads slightly flattened by the hammer, for a few bucks you can buy a special tool called a "head set" that won't deform the heads at all. The only disadvantage in using solid rivets is that installing more than just a few is a time-consuming process.

Pop rivets are much faster. And, except in areas where there is a lot of strain on components that must be held securely together, they do a very adequate job.

When it comes to below-the-waterline repairs, closed-end pop rivets should be used. However, in an emergency, if closed-end rivets aren't available you can get by with open-end rivets. You'll have to plug each open end with a dab of glue or silicone sealer to eliminate any potential leaks around the small round ball that causes them to expand. Pop rivets aren't quite as strong as solid rivets, so if you use them it's a good idea to go with at least one size larger than the original. In a blind area where there is no other choice, drill extra holes close to the rivet you removed and install pop rivets in those holes, too, for extra reinforcement.

Pop rivets are available in a number of sizes from $\frac{1}{8}$ -inch to $\frac{1}{4}$ -inch diameter. And do be careful when enlarging the hole—you don't want to make it so large that the replacement doesn't fit snugly enough to prevent leaks. Also, if you can reach the inside end of the rivet, it's very important to use an aluminum backing washer for better holding strength.

Big holes, gashes

Sometimes small holes and punctures can be sealed off with a rivet or bolt with very large washers. Or perhaps the damage can be fixed by using that procedure in conjunction with a high-strength epoxy patching material. Big holes and gashes require a patch, the procedure for installing which is as follows.

If the damaged area is also dented, it should first be smoothed out with a rubber mallet, using a block of wood on the other side of the hull as a form. Use careful, progressive tapping to remove the dents. If the dent is deep, with sharp corners, it may be necessary to heat the aluminum very carefully.

Next, cut a piece of aluminum sheet that's roughly the same thickness as the hull into a patch that overlaps the crack, gash or hole by no less than an inch in all directions. Carefully clean the patch and the area it will cover. Center the patch over the damaged area and draw a pencil outline of it on the hull to make sure it covers everything it should.

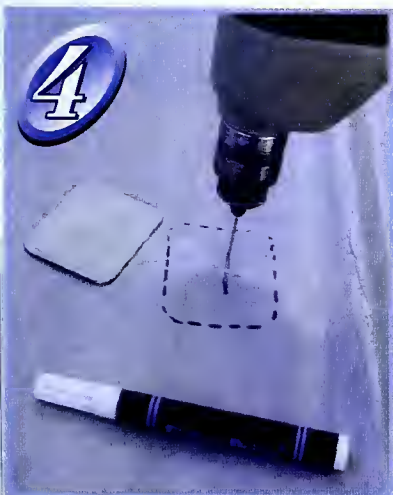
Drill a small hole through each corner of the patch and into the hull. Temporarily fasten the patch in place with four small self-tapping sheet metal screws (type of screw material not important). Now drill a series of staggered holes, the size of the rivets or bolts you intend to use, at 1-inch intervals through both patch and hull so that the damaged area is completely surrounded. Remove the patch, cover the area with caulking or flexible gasket compound, and replace it once more with the temporary corner screws.

Fasten a rivet or nut-and-bolt through each hole until all holes are filled. Finally, remove the four corner screws and replace them with rivets or bolts. All that's left at this point is any refinishing you might want to do for cosmetic purposes.

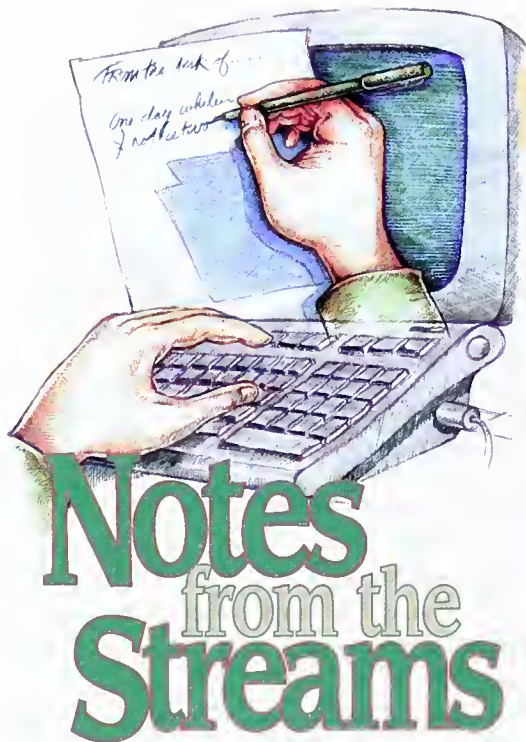
Repairing a cracked hull requires the same procedure as fixing a large hole or gash, except that before applying the patch a small hole (that is, $\frac{1}{8}$ -inch) must be drilled at each end of the crack to prevent it from getting any longer.



photos: Bob Stearns



To repair a crack or hole (4-7), mark the hole with a solid line, the patch area with a dotted line. Drill a small hole at each end of the crack. Machine screws hold the patch. Clean gasket compound around patch.



Don't I know you from somewhere?

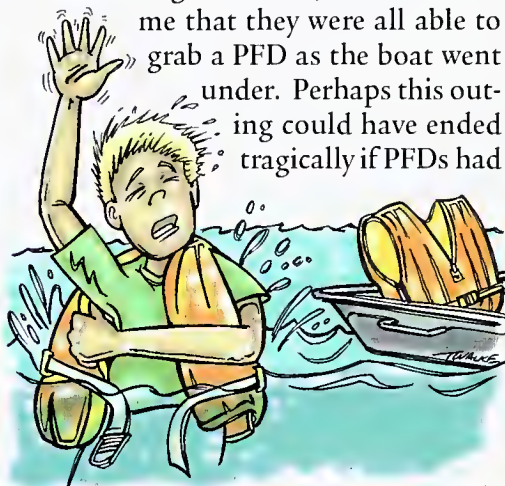
While field training in Lancaster County, WCO Pritts and I were discussing my past employment with the Department of Corrections. Shortly after this discussion I checked my first Lancaster County angler. As I approached the angler, I noticed there was a feeling of tension on his part. As I spoke with the gentleman, I had the feeling he was uneasy. WCO Pritts came to observe my procedure and at this time the angler said, "I know where I've seen you before. You're a prison guard." Stunned, I asked the gentleman which prison he worked at. He said, "Worked? Man, I was in, and I remember you. You can't fool me!" I said, "Yeah, I can't fool you," but I just didn't have the heart to tell him I had worked at a female correctional facility. Close, but not exactly identified!—*Erik Shellgren, Northwest Region.*

Keep them readily accessible

So many times while checking boats on our waterways, our officers find people who have their personal flotation devices stowed away in compartments or under seats. We always urge people to wear them or keep them out where they can get them easily if the need arises.

DWCO Frank Mihelcic and I were patrolling the Youghiogheny Reservoir during Labor Day Weekend. The Corps of Engineers called us to assist them with a boat that had sunk in Tub Run Cove. The boat was at anchor and the people were swimming. When the passengers got back on board, the boat suddenly began to take on water and sank. All that remained above the water was the boat's bow.

We assisted in getting the boat to shore and back on the owner's trailer. During an inspection of the boat after it was on the trailer, we found a leak along one of the hull seams. While completing an accident investigation form, the owner told



me that they were all able to grab a PFD as the boat went under. Perhaps this outing could have ended tragically if PFDs had not been readily accessible. This would not have been the case if the PFDs had been stowed in a compartment. Remember, "PFDs float—you don't."—*Commissioner Donald K. Anderson.*

Sympathetic student

A mass-marking technique that allows Commission staff to identify hatchery fish from those produced in the wild is an important technology used to evaluate efforts to restore American shad to the Susquehanna River basin. The technique uses tetracycline antibiotics to impart physiological mark(s) on the otoliths, or inner ear bones, of all hatchery-cultured shad. One unfortunate but necessary drawback to the technique is that small numbers of shad must be sacrificed for otolith analysis and mark verification.

Annually, Mike Hendricks and I give numerous tours of the Commission's Van Dyke American shad hatchery, located in Thompsettown, Juniata County. During one particular visit, a group of middle school students had gathered to observe Scott Rhodes and Tim Wilson processing shad otoliths. Otolith processing is a messy affair. It requires removal of the fish's head and dissection to retrieve the otoliths from the skull cavity. This particular group of inquisitive students had many insightful questions about the process. However, the most challenging question, and perhaps least insightful, occurred when one sympathetic individual from the group asked, "Does it hurt the fish when you put the otoliths back in?"—*R. Scott Carney, Fisheries Biologist.*

Fill 'er up?

Recently, Lee Swanson, DEP's Oil and Gas Inspector for McKean County, and I were investigating a few sites of mutual interest. While driving up a steep hill outside Lewis Run, Lee's vehicle began to miss, lose power and buck furiously. We got close to the top of the hill before the vehicle stalled in the process of turning around. Using the slingshot effect and gravity, we were able to make it all the way to the garage just as the vehicle quit for good. After some initial confusion, we discovered the problem. It really is amazing how much better those vehicles will perform with gas in the tank. Isn't that right, Lee?—*WCO Pete Mader, McKean County.*

That one's out of season, too

I was patrolling Hereford Manor Lake the opening day of trout season when a fisherman stopped me and said that a man he was fishing beside had caught a largemouth bass. When I asked for the details, he told me that the man had put the fish in his car. I approached the man and asked him to come to his car with me, and I explained why I was talking to him. He told me he did not catch a bass nor did he put a bass in his trunk. I asked him to unlock the trunk so I could take a look. Inside there was something wrapped in a blanket, and it was jumping around. Unrolling the blanket, I discovered a 20-inch largemouth bass. The man told me I was wrong, that the fish was a walleye, not a bass. I told him I knew the fish was a bass and again he said I was wrong, reasoning that he had been fishing his entire life and that the fish was a walleye. He stuck to his story and after a few minutes, I told him it really didn't matter—walleyes were out of season then, too.—*WCO Greg Jacobs, Beaver County.*





Low flow award

Over the years, I have seen quite a few situations where our coop nurseries have had to raise fish on very little water. However, I believe the Perry Township Sportsmen in Fayette County have gotten by on the least amount of water. On November 1 last year, I visited the nursery with Cecil Houser, Commission Coop Nursery Unit Manager. The water flow was just a half-gallon per minute. However, they were able to keep their 1,000 trout alive on this flow along with the use of a 1/3 hp air blower. Fortunately, about 10 days later, normal water flows returned. Tim Gilmore, the club nursery manager, and other members did an excellent job with their fish under extremely poor conditions to rear trout. Keep up the good work!—*Commissioner Donald K. Anderson.*

Mister, can you spare a dime?

Arriving in my new district, I contacted one of the local Wildlife Conservation Officers for patrol and orientation to his district. We were at a local sub shop for take out orders when, after placing his order and receiving his food, the officer



discovered he had no money to pay his bill. No problem, he thought, but an unyielding ATM machine would not accept his MAC card. After letting him wonder for a while if I would pay his tab, I covered his expenses. I know the Game Commission is a cooperating agency, but do I really need to cooperate this much?—*WCO Pete Mader, McKean County.*

Protecting waterways means protecting watersheds

It is somewhat amusing to consider that Waterways Conservation Officers are responsible for considerably larger areas than fellow officers of the Game Commission. In some cases one Fish & Boat Commission officer covers the territory of four or more Game Commission officers. This is often, if not erroneously, dismissed by the notion that we only have to patrol waters while Wildlife Conservation Officers patrol a more encompassing landmass.

Those who would stop to think realize that to protect waterways we must be vigilant of their drainages as well.—*WCO Brian Burger, Centre County.*

Next time, pay attention

I had stopped a boat for operating between sunset and sunrise without displaying a stern light. When I was talking to the boat operator, I could tell that he had been drinking and was possibly boating under the influence (BUI). I got on his boat and told him I was going to have him perform three field sobriety tests. He failed the first two tests and I was about to have him begin the third when he looked up and said, "I know you. You were the instructor at the boating safety course I took." I asked if he liked the course and he said that he did. When he had attempted and failed the third field sobriety test, I told him he was under arrest for BUI. As I was taking him off his boat, he said, "Maybe I should have paid more attention to the part about drinking and boating." He was right.—*WCO Greg Jacobs, Beaver County.*

What do I send in?

I was approached at a local outdoor show by a gentleman who needed clarification on his newly acquired rattlesnake permit. The gentleman said he understood all the regulations except the one about the part of the snake he was to send to Harrisburg. I told him that none of the snake was to be sent to Harrisburg. He replied, "Oh, yes there is, and it says so on the permit!"

The conversation went on for several minutes and wasn't going anywhere. In an attempt to win the argument the gentlemen sent his wife to the truck to retrieve the permit. She return shortly and handed him the permit. The look on his face told me I hadn't studied the rattlesnake permit closely enough and was about to lose this discussion. With a smug look, he handed me the permit and pointed out the line that read, "send disposition to Harrisburg." He then went on to ask, very seriously, "In which end of the snake is the disposition?" With a straight face I explained that meant how the snake was disposed of, not whether or not the snake had a bad temper.—*WCO David Keller, Adams/northern York counties.*

Nice size Buick—too bad it's out of season

I have many dedicated and hard-working people who help stock trout. During one stocking, I noticed some fishing line wrapped around the center of the rear hubcap on the car of one of my helpers. With the owner alongside, I began unwinding the line and told him it looked like 4-pound test. "That's what I use," he said. Opening his trunk and examining his rod and reel, he found that all 200 yards were missing. Obviously, the last time he put his equipment away, the line was left dangling outside and somehow it got caught on the small center of the hubcap.—*WCO Lee Creyer, southern York County.*

When does the tide come in?

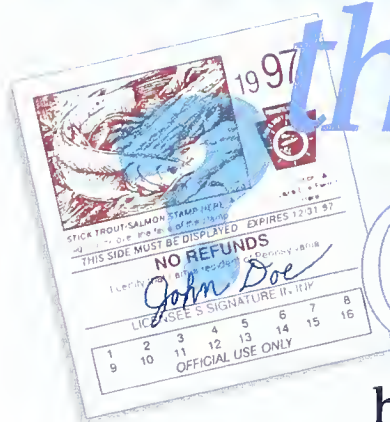
When on patrol, you never know what lies around the next bend. This is true whether on foot, in a car, or in a boat. While checking anglers and boaters, you sometimes find that they, too, do not know what lies ahead. On two occasions last summer I was asked questions that proved this point. An angler in a small electric-powered motorboat asked what time the tide came in at Marsh Creek Lake, a 535-acre manmade lake in central Chester County.



The other encounter was on the Schuylkill River on WCO Barton's jetboat along an isolated section of river between Phoenixville and Valley Forge. We were flagged by a personal watercraft operator who appeared to be having equipment problems. The craft had weeds or small stones blocking the jet and could manage only idle speed. Upon approach, the operator stated that it must be low tide causing his navigation troubles. Without showing any amusement, WCO Barton informed the operator that he was pretty far upriver from tidal influence, and he didn't mention a couple of dams in between.

A reminder: Please become more familiar with the water you plan to boat on.—*WCO Donald Lauver, Jr., Northern Chester County.*

Where Have All the Anglers GONE?



by Tom Ford

The current downward trend in fishing license sales in Pennsylvania confronts the Commission with a tremendous challenge for the future. The Commission receives no general government tax dollars and is supported entirely by user fees paid by anglers and boaters. The Commission relies on fishing license sales as the main funding source for resource protection and management activities that ultimately benefit anglers and all of the Commonwealth's citizens. If the current decline in license sales continues, the Commission will be hard pressed to sustain the current level of programs and services in the next millennium.

The cost of doing business, like the cost of living, increases annually, even if moderately. The support of fewer and fewer annual license buyers means that, without a new source of revenue or aggressive program cost containment, prices for the

remaining license buyers will ultimately have to rise to sustain the current program levels.

Fishing license price increases lead to fewer license buyers and a smaller base of support for the Commission and our mission. The laws of economics dictate that as the price increases, the demand will decrease as you exceed individual customers' willingness to pay. The Commission recognizes the cost of fishing licenses/stamps as having a significant effect on the number of fishing licenses sold.

So what is the Commission doing to contain license costs? The Commission is working aggressively to sustain a stable license base, expand sources of revenue, and contain program costs. It is unlikely that any one of these efforts alone can get the job done. By attacking the problem from all three facets, it is hoped that positive results will be achieved.

One thing is certain—there are challenges ahead but also opportunities to forge new partnerships and build a more diverse base of support. This article details the underlying trends and issues that are influencing what the Commission will be doing in the year 2000 and beyond.

License sales trends

Historically, Pennsylvania is in the top five states in terms of total license sales. When you limit the scope to just freshwater anglers, PA has more anglers than all other states except California and Texas. Sixty-three percent of Pennsylvania anglers fish for trout and 62 percent fish for bass. Looking at total days of freshwater angling, PA comes out second behind Texas. Forty-eight percent of all PA freshwater fishing days are spent fishing for bass species, while 47 percent of the days fished by PA anglers are spent seeking trout.

U.S. Fish and Wildlife Service (USFWS) survey statistics from 1980-1990 show a 24 percent increase in the total number of anglers in Pennsylvania, which amounted to approximately 15 percent of the state's population 16 years and older indicating they are anglers (not necessarily license buyers). License sales showed a more modest increase of 8.5 percent over this same period. Both the number of anglers and the number of license buyers appear to have peaked in 1990 when an all-time high of 1,163,758 fishing licenses were sold. Unfortunately, since 1990 license sales have been declining.

During the period 1990-1996, total license sales declined nearly 16.4 percent. Before the nine percent decline in license sales in 1996, the largest single decline was 7.6 percent in 1991 following the introduction of the trout stamp. In spite of several years during the period 1990-1996, when slight increases in the total number of licenses sold were realized, there is a clear declining trend in fishing license sales in Pennsylvania. Mirroring this decline in total license sales, trout stamp sales have declined roughly proportionally. For example, between 1995 and 1996, total license sales declined 8.93 percent while trout stamp sales declined 8.83 percent.

In actual numbers, the Commission has lost nearly 200,000 annual license buyers between 1990 and 1996. In 1996, fewer than one million licenses were sold for the first time in 20 years. The last time total license sales were comparable to the 1996 level (973,241) was in the mid-1970s.

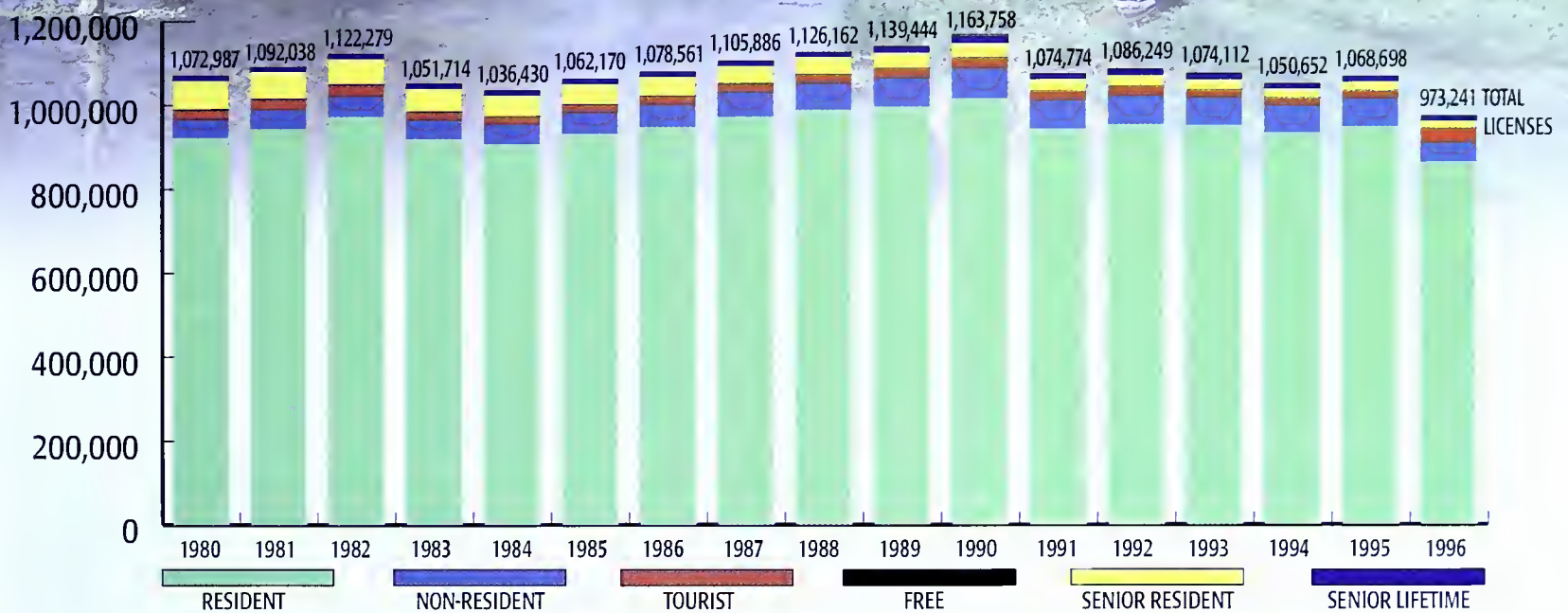


Opossum Lake, Cumberland County



Big Spring Creek,
Cumberland County

LICENSE SALES BY YEAR AND TYPE: 1980-1996



The largest losses came in the resident license category, which declined 152,270 licenses (or 15 percent) since 1990. The other license category that declined significantly is the annual senior resident license category, which declined nearly 50 percent to approximately 18,000 licenses. Many former annual senior license buyers may have decided to purchase a senior lifetime license. Looking at the price difference between the annual senior resident license (\$4.00 plus a \$5.00 trout stamp) and the lifetime senior license (\$16.00 plus a \$5.00 trout stamp), many seniors may have opted to pay the \$12 difference once and never have to purchase another fishing license or stamp in Pennsylvania.

During the period 1990-1996, the Commission sold 107,773 lifetime licenses, while total fishing license sales declined by 190,517 licenses. Assuming that all those anglers who bought senior lifetime licenses in 1990-1996 previously bought either an annual senior resident license (which declined by some 18,000 licenses over the same period) or a resident angler license, more than 50 percent of the total loss in license sales could be caused directly by the sale of lifetime licenses.

The transfer of annual fishing license sales, from annual senior licenses or resident adult licenses to lifetime licenses, is eroding annual fishing license sales in Pennsylvania. As the state with the second oldest population in the nation (nearly 20 percent of the state's population will be 65 years old or older by the year 2000), this erosion will continue to be a significant factor in the decline of annual fishing license sales.

Even though PA has historically ranked in the top five states in total fishing licenses sold, the state also ranks near the bottom (47th) of all the states in the percent of the population over 16 years of age that participates in fishing. Nationally in 1990, 19 percent of the nation's population 16 years of age and older indicated that they fished. In Pennsylvania, only 15.6 percent of the population 16 and older indicated they fished. Participation is highest in Alaska, where 50 percent of the residents 16 years and older fish, and lowest in New York where 13.8 percent of the state's residents (16 yrs +) fish.

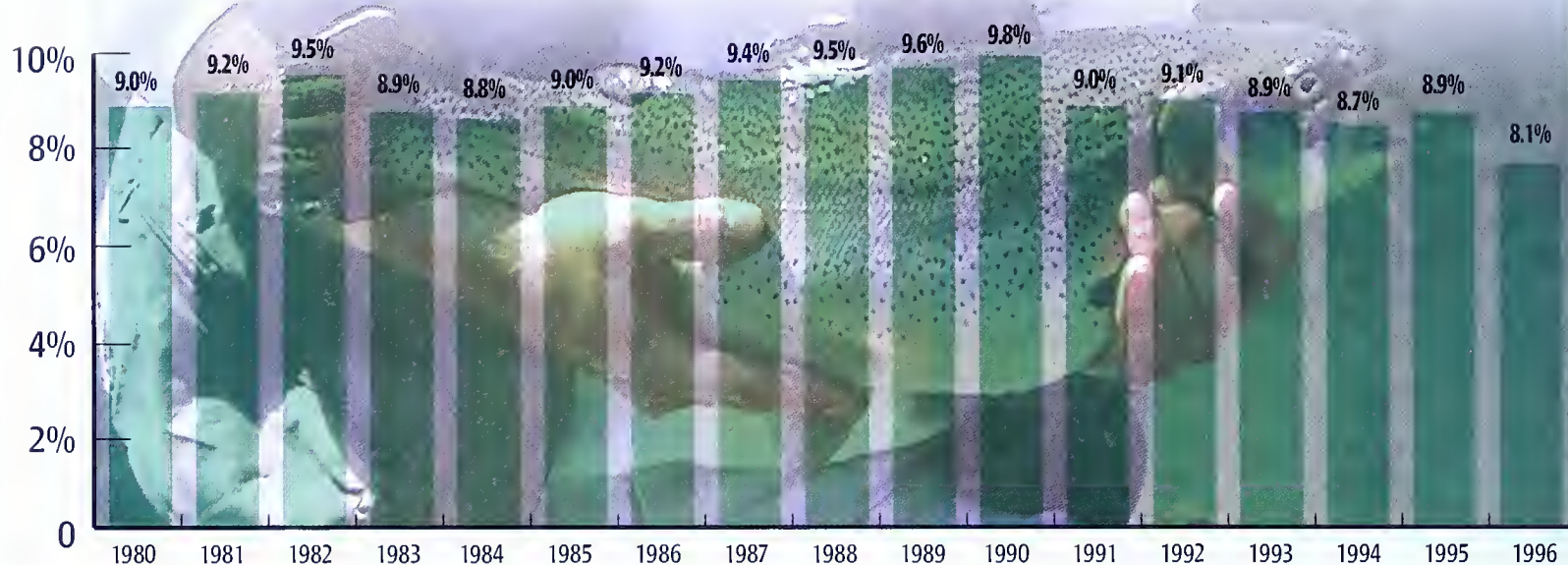
Both the national and state participation rates were up slightly from 1980, but since 1990 PA has seen a decline in the

percentage of the population that is purchasing a fishing license. License sales as a percentage of the Commonwealth's total population had an increasing trend to the all-time high of about 10 percent in 1990. In 1996, fishing licenses were purchased by only eight percent of the total state population which is down nearly two percent from 1990.

Even though PA ranks below most other states in percent of population 16 years and older who fish, it must be noted that the 1991 USFWS survey of hunting and fishing participation shows that PA ranked third in total number of resident freshwater anglers and second in the nation in the total number of days of freshwater fishing by residents. Anglers are a minority in Pennsylvania, but PA's anglers are certainly avid. They actually spend more days freshwater fishing (an average of 18 days per angler) than any other state!

Angler places of residence roughly reflect the state's general population places of residence. About 45 percent of all fishing licenses are sold in and around the metropolitan areas surrounding Philadelphia, Pittsburgh, Harrisburg and Erie. Considering that some "city-dwellers" buy

PERCENT OF PENNSYLVANIA POPULATION BUYING A FISHING LICENSE



Where Have All the Anglers GONE?



their licenses “up-state,” it is possible that a majority of anglers live in urban or suburban areas.

Generally speaking, license sales have declined in the major metropolitan areas proportionally to the overall decline in license sales. In 1990 through 1996, the most significant declines in total fishing license sales occurred in Allegheny County, which declined by 14,000 licenses, or 18 percent of the 1990 base county sales. Nearly twice as many fishing licenses are sold historically in Allegheny County than in any other county.

Who is fishing in PA?

From a randomly drawn sample of 1995 license holders, the Commission knows “who” buys Pennsylvania fishing licenses. Resident license holders are 88 percent male, which means that 12 percent of our license holders are female. Another survey showed that only eight percent of our trout anglers are female. Nationally, women anglers comprise 17.7 percent of the total angling population and 28 percent of anglers 16 years and older. With females comprising 52 percent of the state’s population, PA has room to improve when it comes to recruiting women anglers.

In terms of race, 92 percent of anglers nationally and 98 percent of Pennsylvania anglers are white. The 98 percent does not reflect the Commonwealth’s racial composition, because 88 percent of the

Commonwealth citizens are white.

In terms of place of residence, 26 percent of PA licensed anglers live in a small city, four percent in big cities, 23 percent in suburbs and 47 percent in rural areas. That’s almost a 50/50 split between city/suburban dwellers and rural residents, which generally reflects residence statistics of the general population.

Concerning the level of education anglers have, six percent of the anglers surveyed indicated they have a graduate degree, 16 percent indicated they are college graduates, 21 percent have some college and 45 percent are high school graduates. Thus, a total of 88 percent of Pennsylvania’s licensed anglers have graduated from high school or have completed college. Some 81 percent of the state’s general population have graduated high school or gone on to college. It might be a stretch to say that anglers are smarter, but it appears that they have spent more time in educational institutions.

Current fishing license holders, which include lifetime license buyers from 1978 to the present, are older than the average age of Pennsylvanians. Some 24 percent are age 65+, 10 percent are between the ages of 55 and 64 years of age, 23 percent are between the ages of 45 and 54, and 20 percent are between the ages of 35 and 44. Some 14 percent of our license buyers are 25-34 years of age, while 15 percent of the Commonwealth’s population is 25-34 years of age. License buyers in the age range of 17 to 24 are under-represented when you look at the percentage of the state’s population between the ages of 17 and 24 years of age. Only eight percent of the license buyers are between the ages of 17 and 24, while 11 percent of the Commonwealth’s population is between

the ages of 17 and 24. The lower number of anglers in this age range, compared with the general population in this age group, reflects a nationwide trend of losing anglers in the college years and immediately following. It also may reflect the out-migration of 17-29 year olds that PA has experienced.

Factors influencing fishing license sales

There have been some theories advanced through the years about the factors that effect license sales. Factors cited include the weather around opening day of trout season, the combined cost of licenses and stamps, whether or not it was a license increase year, the size and age of the Commonwealth’s population, the miles of water stocked and the miles/acres of water under special regulations programs.

Statistical analysis of the data shows that the most significant factor is the total cost of licenses and stamps, and the timing of price increases. Anecdotal evidence shows that the weather around the first day of trout season has an effect on license sales. However, “statistically speaking” there is not a strong relationship between the weather and the total number of licenses sold in a year. Intuitively, bad weather has a negative effect on fishing license sales, but it probably doesn’t make sense to spend Commission resources or energy worrying about this factor because it is out of the agency’s control.

Angler recruitment

Annual license sales are in part dependent on recruitment of new anglers. As older anglers drop out of the angling population, a steady stream of new anglers must be recruited from the

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Commonwealth's population to replace them. Without adequate recruitment of anglers, the number of annual license buyers will decline.

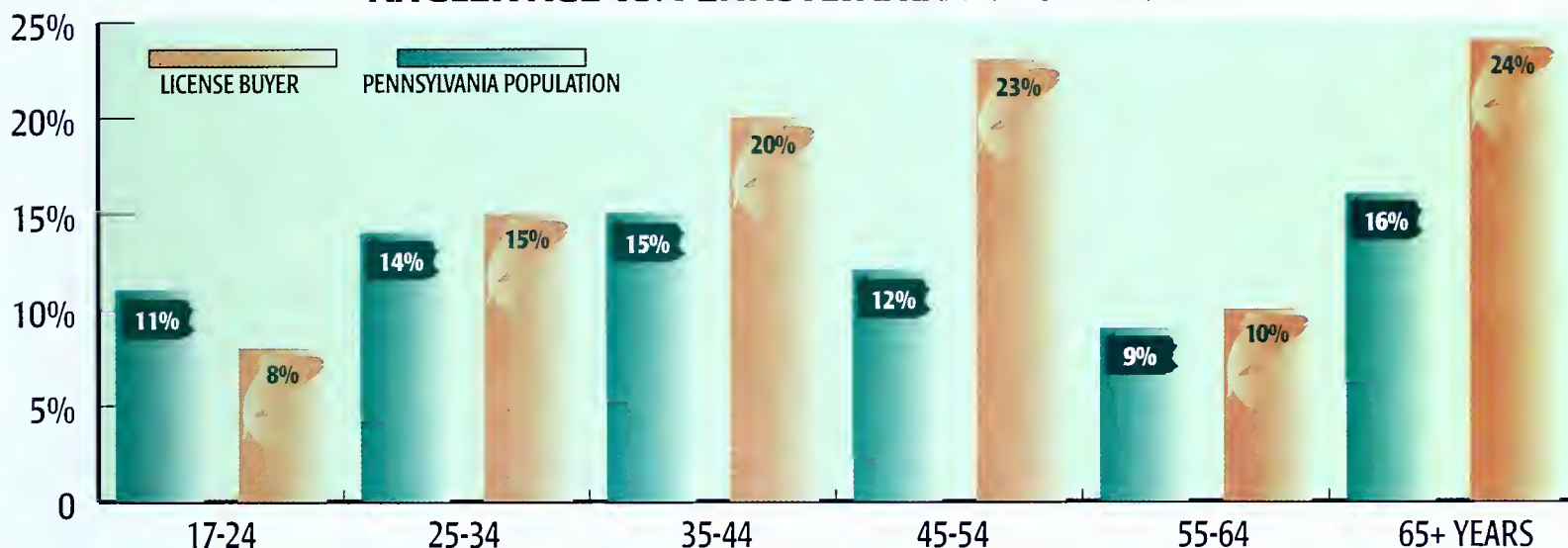
Research in other states and at universities shows that there are several factors critical to successfully "making" an angler. One factor often cited as the key to recruiting an angler is the introductory experience.



In 1980, 30 percent of children between the ages of 6 and 15 (539,000) fished. In 1990, when some of this same group would have been older (16-25 years of age), 22 percent of this population was still fishing.

Information on the number of kids fishing from 1990 to the present is lacking, but there are several conclusions that can be drawn from the information. First, there were more kids fishing in 1990 than

ANGLER AGE VS. PENNSYLVANIA POPULATION AGE



The 1995 Penn State Data Center (PSDC) survey shows that 60 percent of the Commonwealth's adult population (18 years or older) were introduced to fishing. If an introductory fishing experience was the only thing needed to recruit an angler, then PA should have five million licensed anglers!

The introductory experience is only one part of the recruitment process. The other important recruitment factors include access to the resource, access to equipment, instruction and social support. The successful recruitment of anglers depends on all these factors. Surveys of current anglers conducted at the national level offer further insight into the recruitment process:

- About 84 percent of current anglers were introduced to fishing before age 15.

- A study at Michigan State University (MSU) found that the earlier an angler is introduced, the better! The younger a person is when introduced, the more one will fish as an adult.

- The MSU study also found that individuals who fish as teens are more likely to fish as adults.

- Most anglers were taught how to fish by family or close family friends.

- There is a close connection between family members who fish and later fish-

ing involvement. The more members of the family who fish, the more individuals fish as adults.

Some factors that are dispelled as statistically insignificant in the national research are:

- There is little relationship in where individuals grew up and later fishing involvement.

- There is little relationship between fishing activity and family type—that is, individuals in single-parent families are no more or less inclined to fish than are individuals in more traditional families.

So with all this information provided on the issue of recruitment, does Pennsylvania have a recruitment problem? The simple answer is that the available data does not indicate that there is a problem. The final verdict is still unknown. The Commission is eagerly awaiting the results of the 1995 U.S. Fish and Wildlife Service fishing participation survey for additional information. Information available from the 1980, 1985 and 1991 USFWS surveys shows the following:

- Some 540,000 individuals age 6-16 years of age fished in 1980. In 1990, 613,000 kids (ages 6-16 years of age) fished. This is an increase of 73,000 kids over the same period when the total number of kids in this age range declined by 183,000.

ever before in spite of population declines in the total number of kids available to fish. The data also suggests that a good number of kids (based on analysis by age group over time) will fish as adults.

The results of the 1996 National Survey of Hunting and Fishing enhance our knowledge of recruitment in Pennsylvania and will help determine if there is a problem. Right now, the immediate problem with the decline of license sales seems to be retention and not recruitment.

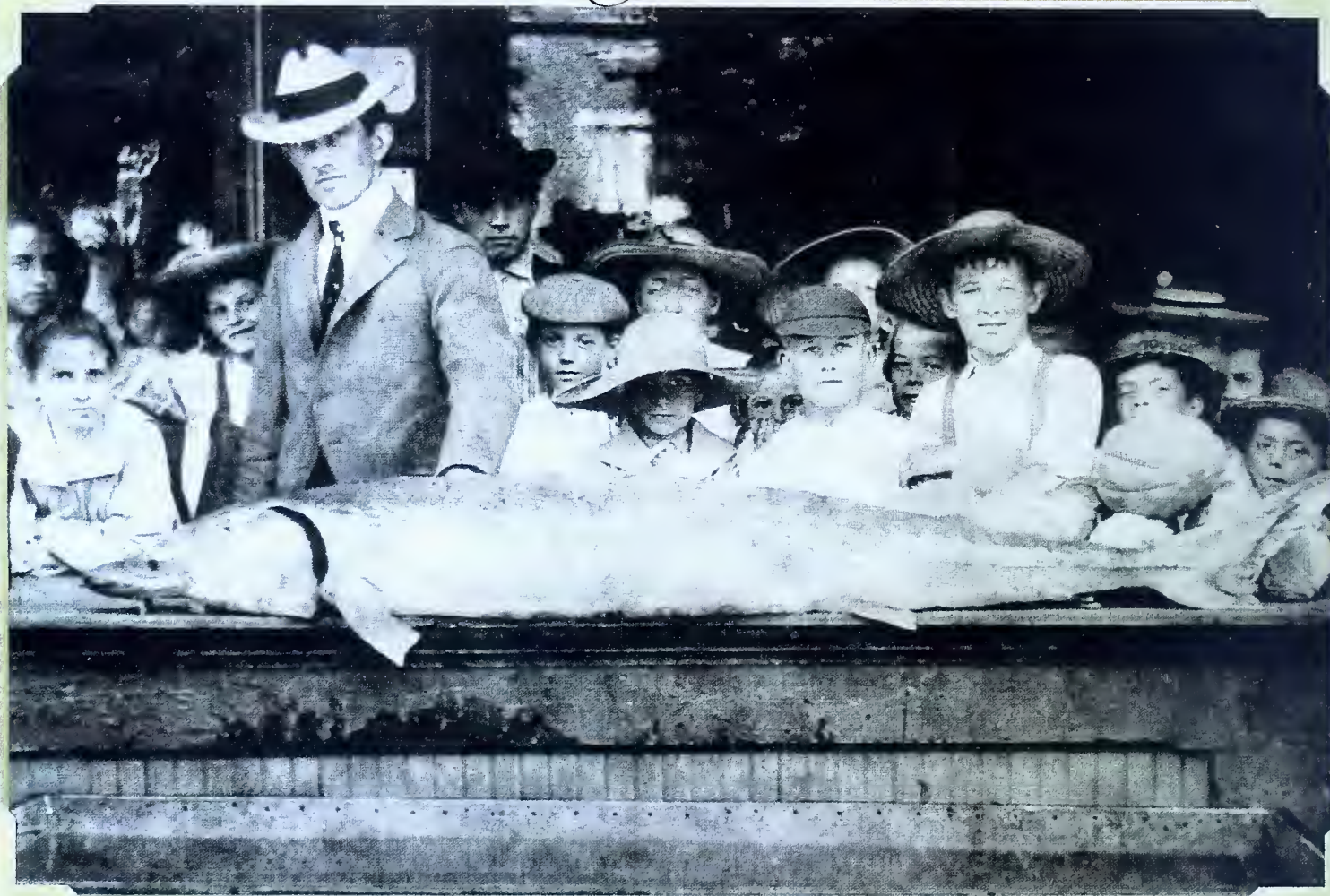
The Commission clearly has a dropout problem. A related concern is that we might be losing two anglers with the loss of every one license buyer. The trout angler survey showed that the average angler household contains one fishing child. If the parent(s) quits fishing, the kids they influence will likely quit as well. This is a two-for-one deal the Commission and the sport of fishing can ill afford!

The Commission is actively working to assess the reasons why anglers are dropping out. Once these reasons are known, strategies can be developed to retain a stable base of support and ensure the next generation of anglers in PA.

Tom Ford is the Fish & Boat Commission Resources Planning Coordinator.

Pennsylvania Caviar

by Joe Carricato



In the 1950s, my pursuit of material for the "Outdoors" column of Harrisburg's *Sunday Patriot-News* required me to be at the State Capitol at least once a week. On one such visit, J. Allen Barrett, the Fish Commission's director of publicity, gave me a photo of the sturgeon. There was no label on the photo, but Al told me, with apparent authority, that the photo was taken at Newport, Perry County, to record the last sturgeon taken from the Juniata River. The event would have taken place well before 1900, as documented later in this article.

Regretfully, I goofed. I should have documented Barrett's story about the photo. Had I gone to Newport, there might have been some old-timer or other local source to provide a complete history of the photo.

So here we are, some 45 years later, to endeavor by current research to authenticate the existence of an actual Susquehanna-Juniata sturgeon and a once-upon-a-time Pennsylvania caviar industry.

First, the local: The Juniata River flows into the Susquehanna near the Clarks Ferry Bridge, above the village of Duncannon on

the west bank and a few miles north of Dauphin on the east. Newport is a few miles upstream on the Juniata. Whatever its starting point, its alleged final, fatal, destination is well within the capability of a sturdy sturgeon.

Presumably, our sturgeon's migration would have begun somewhere in the Atlantic Ocean, then to the Chesapeake Bay, then to the Susquehanna River mouth near Perryville and Havre de Grace, Maryland. Approximately 15 miles up the flats the big fish would then have crossed the Mason-Dixon Line into Pennsylvania and

photo provided by Joe Carricato

If you think that caviar originated only in Europe and Asia, guess again!

finned past the counties of York, Cumberland, part-Perry on the west bank, and Lancaster and Dauphin on the east.

After entering the Juniata near Aqueduct and Amity Hall, about 10 miles remained if Newport is where the sturgeon met its end and had its photo taken. Incidentally, Aqueduct was one of my favorite smallmouth bass haunts. The name is derived from an actual aqueduct that carried canal boats over the Juniata. When I fished there, remnants of the stone piers remained.

It can be documented that our Perry County sturgeon's fatal journey occurred before any of the big dams were placed on the Susquehanna-Holtwood Dam in 1910, Conowingo in 1928, and Safe Harbor in 1932. As a matter of fact, sturgeon were long gone from the Susquehanna before those hydroelectric impediments were installed.

The source for the above statement and for the information to follow is a "Report of State Commissioners of Fisheries," year 1900, addressed to "His Excellency William A. Stone, Governor of the Commonwealth of Pennsylvania."

Here are several verbatim excerpts from the report:

"Early in the present century sturgeons abounded in the Delaware and Susquehanna Rivers"—in the report of the Pennsylvania Fish Commission for 1896—appears the following: "Men not yet 60 years old say it was not an uncommon sight to see several sturgeon during a single trip between Camden and Philadelphia jumping in the river. Mr. Samuel Williams, now in his eighty-fourth year, says that when he was a boy, on one occasion he went with his father on a shad fishing trip in the lower Delaware, and during it he saw thousands of sturgeons."

If that boy was 12 years old on that trip, I wonder if his estimate of the fish he saw didn't increase with each of the 73 years to the 1896 report.

More excerpts from the 1900 report: "The story which is here told of the sturgeon fisheries of the Delaware River is the same for that of the Susquehanna River and the Great Lakes except that the industry in the Susquehanna is entirely wiped out."

"It is claimed with every indication of truth, that unless something of a radical nature be done there will be no sturgeon at all ten years from now."

That statement was remarkably prophetic. But the old boys were not willing to throw in the towel yet. The report con-



Endangered and Threatened Sturgeons in PA

In Pennsylvania, the Atlantic sturgeon is threatened. The lake sturgeon and the shortnose sturgeon are both endangered.

The Atlantic sturgeon is the largest Pennsylvania fish. It can attain a length of 12 feet. This sturgeon breeds in the upper reaches of the Delaware River. The shortnose sturgeon is the smallest of the three PA sturgeons. Mature fish are about 20 to 24 inches long. The lake sturgeon reaches lengths of seven feet. It is currently known to occur in Pennsylvania only in Lake Erie.

Exploitation by commercial anglers and pollution of spawning and nursery habitat caused the decline of the Atlantic and shortnose sturgeons. Pollution and building locks and dams on western Pennsylvania's large rivers, preventing the sturgeon's reaching spawning habitat, caused the decline of the lake sturgeon.

tinued: "Both the United States Fish Commission and the Pennsylvania Fish Commission recognize the danger and the former has begun preparations to propagate the fish artificially, while the Pennsylvania Commission is endeavoring to discover a way to do likewise."

The lack of information about the Susquehanna sturgeon in the 1900 report contrasts with page after page about the Delaware River industry. Although the New Jersey side of the Delaware at a place named Bayside was the most prominent and long-lasting, a sturgeon industry was started in 1873 near Chester, PA. A Mr. Henry Hadley moored a large scow at the end of a town street and erected a fish camp on the scow. There were bunks for sleeping and a male cook to provide meals.

The camp had a fleet of boats, each of which was 25 feet long and had a tall mast both fore and aft, and a two-man crew. Apparently, one man alone could not handle a heavy drift net, especially to haul in a thrashing fish weighing anywhere between 50 to 100 pounds or more.

After the catch was unloaded onto the camp deck, practically every part of the sturgeon was used to maximize profit. The roe, of course, was the most valuable product, so any available egg sack was immediately removed for later processing of the roe (eggs). The flesh was usually smoked for sale to New York and Philadelphia restaurants. Sometimes it was passed off as smoked salmon.

The head, skins and bones were sold as "sets" from which oil was pressed. A

set consisted of 33 heads, hides and bones. To produce caviar, the eggs were run through several sieves of graduated fineness and treated with "Lunerberg" salt, specially imported from Germany. This particular salt was said to produce a finer grade of caviar than that in which domestic salt was used.

The treated roe was then packed in kegs holding 135 pounds of product. It was usually in the fall when an accumulation of kegs was shipped to Germany, probably for further processing and packaging. It was said that some of that Delaware River roe was shipped back to the U.S. as packaged caviar.

I cannot guess the price of caviar at that time. However, the report did list the net cost, which included all the camp expenses at the Delaware River, shipping to New York docks, and thence to Germany. The total was \$1.05 per pound. Remember that this was before the year 1900. Wouldn't today's purveyors of the salty stuff love even to remotely come close to that cost?

The photo of the Juniata sturgeon and a few vague notes lay for some 45 years in a file folder labeled "Future Outdoors Articles," which brings to mind an old axiom—Procrastination is the thief of time.

"One is never too old too learn" is also applicable here. This crusty octogenarian always believed that caviar was exclusively of Russian or European origin. Perhaps people like me (and youngsters, too) would never have associated caviar with our Susquehanna or Delaware rivers. ☐



Collecting Natural Baits

by
Oliver Shapiro

Few anglers would argue that fishing with artificials often requires more skill and knowledge, and can be more rewarding, than using natural baits. Walleye jigs, bass plugs, trout and salmon flies all require proper handling and finesse. But there are times when natural bait is simply a better choice, when our quarry is simply too finicky to be taken in by metal or plastic. And teaching beginners, especially children, is usually more successful when the odds are stacked in favor of hooking fish. This is most easily accomplished by using live bait. Furthermore, many times only the real thing entices the lunkers. They got to be that size by scrutinizing each potential meal very carefully before trying it.

There are many choices of live baits available, even as there are many foodstuffs that different gamefish use as forage. Most anglers purchase bait from tackle stores, but you can avoid the inevitable shortages and realize substantial savings if you collect your own.

Worms

Day in and day out, earthworms are the true workhorses of the bait world. Easy to collect and relatively easy to keep and transport, the worm has seen countless kids through their formative fishing years. They'll catch a huge variety of fish: Panfish, catfish, trout, bass, walleyes, pickerel, suckers, carp and more. There is surprising diversity in the earthworm family, but the two most commonly used are nightcrawlers and garden worms, differentiated primarily by size. Garden worms average 3 to 4 inches, whereas nightcrawlers reach lengths of 5 to 8 inches or greater.

Look for them in moist, soft earth in shaded areas and near tree or plant roots. Some tricks can be used to help gather them. One is to wait until it rains and simply gather those that have escaped from the flooded ground onto a lawn's surface or nearby pavement. Or you can create your own rain conditions by simply watering your backyard thoroughly.

Another method is collecting them at night with a flashlight. Search for the wet glint of worms peeking out of their burrows. When you grab one, it will probably attempt to dive underground. Don't pull hard; it will simply break. Exert constant, gentle pressure on it until it tires and comes free. Some people recommend searching in this manner with red cellophane taped over the flashlight, to prevent the bright light from spooking the worms.

One means of worm gathering is to use electric current in a metal probe, stuck in the dirt, to force the critters to the surface. Although this technique can be effective, the safety problems make me shy away from it. Suffice it to say that it's necessary to use all due caution if you try this.

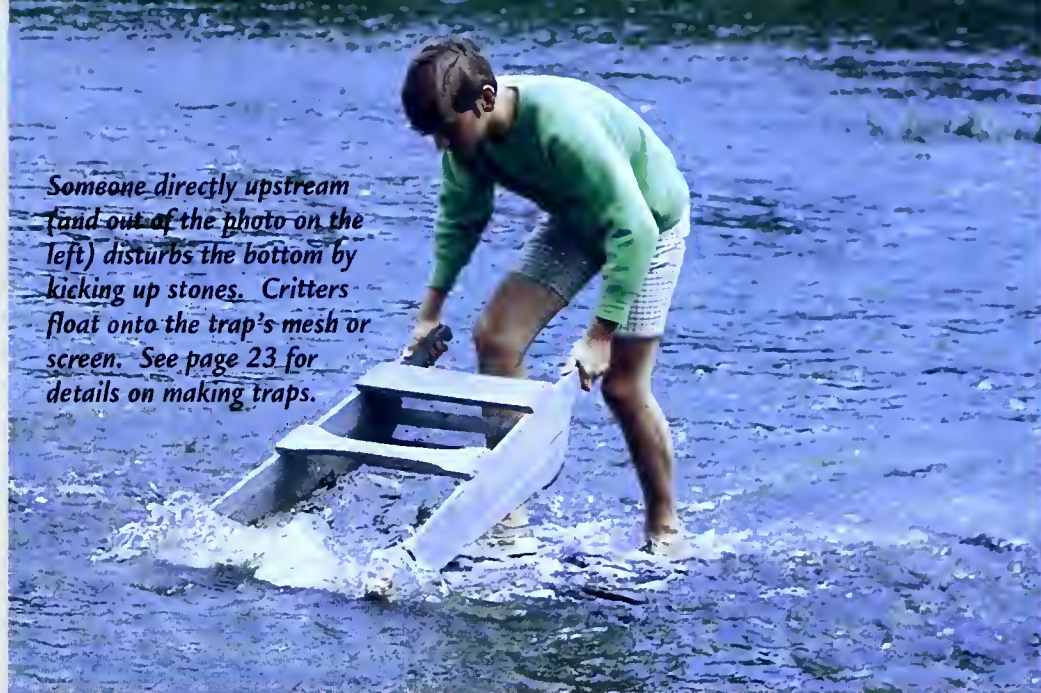
Keep the collected worms in any handy container. The standard type is a small styrofoam bowl with a plastic lid, but almost any container of similar configuration, such as an old margarine or butter tub, serves just as well for short-term use if you poke a few small holes in the lid for ventilation. Be sure to include bedding with the crawlers. Native soil is fine for a few days, but use commercial bedding (available at most bait shops) if you wish to keep worms longer. Either way, keep them cool, moist, and in the dark as much as possible. Refrigerators are, of course, the storage means of choice, but be sure none of the other occupants in your home mistakes your bait container for a bread spread!

Baitfish

There are few baits that are more attractive to a hungry predator fish than a fluttering, distressed baitfish, which appeals to a gamefish's sight as well as its lateral line detection system. Good for bass, members of the pike family, trout, salmon, walleyes, many panfish, and some catfish such as channel cats, baitfish may be the closest approach to a "sure thing" in fishing. The biggest drawback is their expense, and difficulty in keeping alive and active.



A one-person seine. Angler disturbs the bottom while critters float into the net.



Someone directly upstream (and out of the photo on the left) disturbs the bottom by kicking up stones. Critters float onto the trap's mesh or screen. See page 23 for details on making traps.

Catching your own has definite advantages. Remember, though, that you need a fishing license to do this. Perhaps the biggest advantage is that if you catch baitfish from the same waters where you will be fishing, you ensure that you'll be offering the best possible imitation of natural forage—namely, the real thing. Although store-bought shiners can often be productive, many of the lakes where they are used don't have native populations of such interlopers.

The easiest method to harvest baitfish is trapping, using the familiar wire basket with funneled inlets. The basket is opened, baited with some cracker or bread pieces, closed, and left submerged. The fish are attracted to the bait and are led in through the funnel openings. Once inside, they typically can't find the way out. Although the commercial wire traps are not expensive, it is simple enough to make your own. Leave the baited trap in the water for at least a couple of hours. Alternately, simply set up the trap in the afternoon, and check it again in the morning.

Remember that if you leave a minnow trap or baitfish container unattended, you must identify it with the owner's name, address and phone number. Minnow traps can have no more than two openings that don't exceed one inch in diameter.

Legal netting methods include dip nets, which are basically very deep, small-meshed hoop nets with long handles, and umbrella nets. The latter are square nets in a metal frame. A rope is attached to the frame, by which the net is lowered to, and raised from, the water. Dip nets or seines cannot exceed a diameter or square measurement of four feet.

You might also consider fishing for baitfish! Baitfish can be fun to catch in their own right (the legal limit is 50), and

this method is very satisfying if you don't need huge numbers of them or if you're not in a big hurry. For typical species, use very small, light tackle and hook sizes around 16—certainly no larger than 10 or 12. Corn, breadballs, tiny worms and the like are suitable for bait.

Sometimes angling is, in fact, the only reasonable method for targeting baitfish. If your quest is the next world-record muskellunge, you'll be trying to catch baitfish in the 6-inch to 8-inch range—perhaps perch or suckers—that a typical kid would be happy to catch all day long. Angling is probably your best bet for these baitfish.

Once you have them, you need to maintain them properly. I usually don't try to keep baitfish healthy for more than a couple of days. The two most important factors to watch are oxygen and temperature: Don't let the former get too low, or the latter too high. Portable battery-powered aerators work well, as do oxygen tablets. For overnight storage of baitfish, I've had good luck simply keeping them in a small bucket in the refrigerator. When I do this, I find it helpful to lower the water level in the bucket, which reduces the volume of water that needs to be oxygenated by the air inside the refrigerator. If you have a lot of baitfish, keep them in multiple containers so that there isn't too much competition among them for the available oxygen.

Crayfish

Also known as crawdads or crawfish, these small crustaceans are often a preferred staple of bass, especially smallmouths. Other predator species, including pickerel, pike, big trout, and some panfish such as large perch, will rarely turn up their noses at this delicacy.

Be sure to leave enough space for bugs to get in.

BOARD OR FLAT ROCK

CAN

BAIT

GROUND

These little fellows can be found in most waterways. They can either be trapped or caught, using some handy tools. If you're already equipped for catching baitfish, you can use much of the same equipment. Metal minnow traps can be baited with bits of fresh meat, or a can of pet food with holes punched in it, and set in a shallow rocky area. Umbrella nets can be similarly deployed, and lifted after dark.

If you need some right on the spot, a handy tool to devise is a metal can (from, say, canned beans) mounted on a pole. Puncture the bottom with some holes. With the pole in one hand and a stick in the other, turn over rocks in a shallow area. Any specimens that turn up can be herded into the can with the stick. Remember, however, that the crayfish will try to escape by traveling backward. Lift the can out of the water; the water draining from the puncture holes will prevent the fellow from escaping.

For keeping your crayfish, your baitfish equipment will come in handy again. They can get sufficient oxygen either from the water or from the air, as long as their gills stay wet. Keep them in cool, aerated water, or they may be kept in a cooler or equivalent packed with wet weeds, newspaper or moss. Again, keep the oxygen levels up and the temperature levels down.

Insects

This includes both adult insects (grasshoppers, beetles, crickets, etc.) as well as larval forms such as mealworms and waxworms. All of these insects will catch panfish, trout, bass and other fish.

Adult insects can be collected in the field or trapped. To collect them, look for grasshoppers in fields and crickets in more wooded areas. Often your quarry can be found under flat rocks or logs. Grab them quickly because many are excellent jumpers, or use an entomologist's ("butterfly") net. It's easier to gather insects this way when the temperature is down a bit. In the event of any late-season heat waves, nighttime collection by flashlight is the best time.

Trapping them may be accomplished by sinking an empty food can (say, a large

fruit juice can) into the ground in a likely spot, and baiting it with cracker or bread bits, or cornmeal. Adding a dash of sugar can increase its attractiveness. Cover it loosely with a board to protect any prisoners from unexpected showers, and leave it overnight. Collect your bait the next morning.

To keep your insects for a few days, make sure that they are in a sufficiently roomy container in which they can move about somewhat. Keep it cool and ventilated, and add some sort of cover (grass will suffice) to it. For long-term storage, go ahead and freeze them. Later, when they are thawed, their bodies will have softened somewhat and this sometimes actually makes them more palatable to the fish.

Larval forms are easier to catch—they don't jump around! Different types are found, as you'd expect, in different environments. Mealworms are usually associated with farm operations, and can be found in piles of rotting grain. Keep them refrigerated in small containers with wood shavings or fine cornmeal.

Tent caterpillars are relatively easy to find. Simply look in wooded areas for the tell-tale, spiderweb-like silk nests they construct in trees. When you collect them, take some leaves from the host tree for food and cover. Again, keep them cool. Acorn grubs can be found in acorns with

a small hole in them, indicating where the grub entered. Simply collect the acorns, and keep them cool. The acorns may be cut open when you're ready to fish.

Waxworms live in old beehives. Keep these fellows as you would mealworms. White grubs are often found in dark, rich, shaded soil. Store them in their native soil, making sure to keep it moist and cool. Most of these will keep for weeks or even months if they are properly refrigerated.

Leeches

Although not very high on the human aesthetics list, leeches do figure prominently as a delicacy for sunfish, catfish, walleyes and bass. Of the different kinds of leeches inhabiting North America, the ribbon leech is most highly prized as a bait. They are most easily caught from ponds with lots of plant growth and algae, and where there aren't very dense gamefish populations.

They may be trapped in containers baited with fish offal (heads and organs), chicken or beef liver, or bones. Some people place the bait in coffee cans with the top crimped together; others use wood boxes. Set the traps late in the day or in the evening, and leave them overnight. Retrieve them before sunrise, if possible. If not, be sure to place the traps where they won't be exposed to light, or add covers to the traps in the form of rocks and weeds.

To separate the ribbon leeches from other varieties, place them on the palm of your hand. Discard any that don't squirm. Of those remaining, if there appear to be more than one variety, keep those that seem larger or fatter, or have no spots or stripes. Store them in small containers with fresh water. Minnow containers are fine, but almost any styrofoam or plastic container works. Like most other baits, keep them cool.

The information given here should be enough to get you started on most freshwater species. And the next time you're on your way to your favorite fishing spot, wave to the anglers purchasing bait at the tackle store as you pass. You won't need to stop in.





The Fish & Boat Commission's "Big Blue" has nothing to do with college sports. It isn't a dog's name, an artillery piece, an earth-moving device, or a mountain.

Big Blue is about five years old and weighs a bit more than 21 pounds. It's a state record rainbow trout with one remarkable characteristic: It's azure-blue on the top and sides, fading to white on the bottom.

Big Blue is a mutation that occurs in hatchery production of rainbow trout. So far, this rare genetic glitch has occurred only in rainbow and brown trout. This past year at Big Blue's Big Spring Fish Culture Station home, some 30 rainbow trout were blue in a spawn of about four million eggs. One year, more blue trout might appear. Another year, fewer.

"We separate them early on from the other trout because they're weaker fish, and we don't stock them," says Big Spring Fish Culture Station Manager Terry Farner. "Unless they are set aside, during the first year the other fish usually eat them, or they succumb to the rigors of the hatchery's high-density environmental conditions."

Farner also says that blue trout don't reproduce. Neither the males nor the females develop mature reproductive organs.

"We've been getting blue rainbow trout and blue brown-trout for some 30 years or more, as long as I've been with the Commission," says Bill Kennedy, Bureau of Fisheries Training Officer. "Years ago there was a concerted effort to produce a line of blue trout. But Dr. James Wright, a Penn State geneticist, determined that something was wrong with them physiologically."

Wright identified them as genetic anomalies, or mutations. He determined that blue trout probably suffer from a thyroid deficiency. A fish's thyroid gland produces hormones that affect its coloring during all its life stages. Thus, the hormonal mix-up lets these fish form only the bluish pigment.

"Blue trout are extremely rare,"

Kennedy says, "and they are not something we can selectively breed. Hatcheries keep them as show fish."


The Big Spring Fish Culture Station blues are among the largest the Commission has. Blue trout can also be found at Huntsdale, Bellefonte, Corry and Reynoldsdale Fish Culture stations.

Albino trout, like blue trout, are another rare genetic anomaly. Because of a different kind of genetic quirk, albino trout lack the ability to color themselves normally. Albino trout are different from blue trout in several ways: Albino trout are just as vibrant as other trout. They can also reproduce, but getting more albino trout is rare and unpredictable. All trout species can produce albinos.

On the other hand, golden rainbow trout and the related palomino trout are genetically manipulated fish. In 1954, the West Virginia Conservation Department discovered a single rainbow trout that was partly normally pigmented and partly gold. West Virginia developed the fully golden strain, and by the 1960s, that strain became popular among anglers. In the 1960s, the Commission began producing and stocking the gold-colored palomino trout. The Commission now raises and stocks a slightly different strain, the golden rainbow trout. The rarity of that one partly golden fish was just as uncommon as albino and blue trout.

Big Spring Fish Culture Station's largest blue brown-trout is about six years old and weighs 14.5 pounds. Both blue monster trout now live in a raceway among a few other blue trout and large golden rainbows. The normally pigmented fish won't pick on them now—they're too big.

Big Spring Fish Culture Station welcomes visitors. The hatchery is about three miles south of Newville, Cumberland County, on Big Spring Road. It's open to the public Monday through Friday, 8 a.m. to 3:30 p.m.

Check out Big Spring Fish Culture Station and cast your eyes on Big Blue and his azure buddies. They're an amazing sight. 



LIFE JACKETS and WADING

by Dan Martin

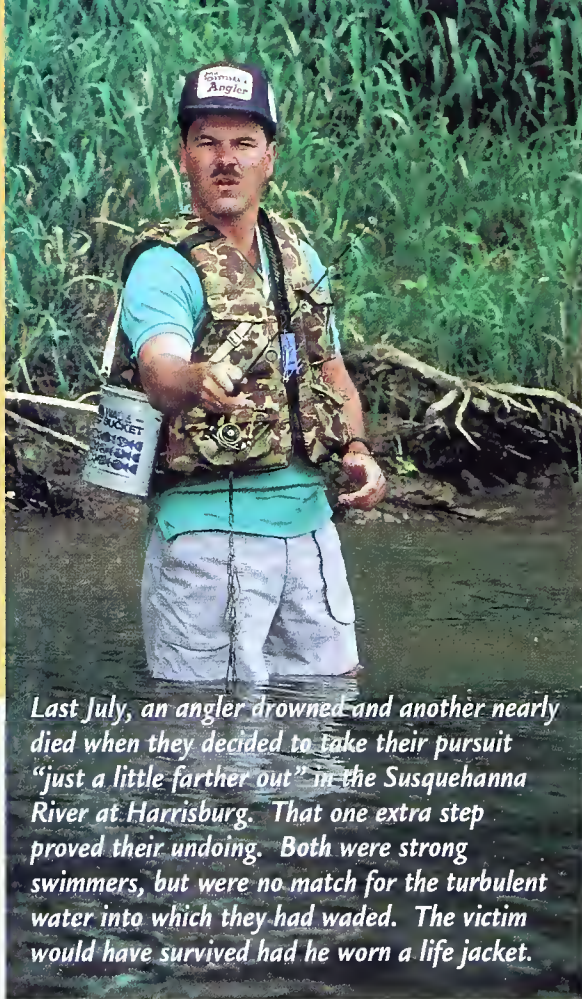
The Susquehanna River

just north of Harrisburg is a wide, fast-flowing river, full of my favorite fish, the small-mouth bass. Several years ago toward the end of July, a buddy and I had planned a wading expedition. Unexpectedly he canceled, so I decided to go alone. I waded out among the rocks just downstream from the Clarks Ferry Bridge near Duncannon. The water was low and clear and ranged from two to four feet deep. I wore an old pair of sneakers, a shirt with a large pocket for my plug box, and a pair of shorts with a fish stringer hanging from my belt loop. My net hung around my neck by a loop so that it was easily available but not constricting.

The fishing was slow at first, but as the evening progressed, things picked up. After releasing several small bass, I caught a nice 16-incher. I wanted to eat one bass, so I hooked the fish to the end of my stringer so that it could swim around until I was ready to quit. Satisfied that even bigger fish were yet to come, I began slowly working my way across the river toward a little grassy island that I knew would be dynamite just before dark.

Without warning, I stepped off a ledge into a hole. Immediately I submerged in the current. My first thought was not to drop my fishing rod. Then I thought, "How can I swim and hang onto my rod?" By then the stringer was also becoming a factor because the bass was wrapping the stringer around my legs. My ballcap with fishing license attached floated off, destination Baltimore! I had accidentally inhaled some water and was coughing and sputtering. Though a confident swimmer, I was having trouble staying on the surface. Fear entered the picture. Decision time arrived. I dropped the rod, unwrapped the stringer and swam to safety. I

spent the remainder of the evening retrieving my cap and looking for my rod.



Last July, an angler drowned and another nearly died when they decided to take their pursuit "just a little farther out" in the Susquehanna River at Harrisburg. That one extra step proved their undoing. Both were strong swimmers, but were no match for the turbulent water into which they had waded. The victim would have survived had he worn a life jacket.

I soon found that wading in the river wearing a life jacket is like using a microwave oven. Once you own one you wonder how you ever lived without it. Now, when I step into water over my head, I don't have to swim because I float. It has pockets for my plug boxes, knife, pliers, and other tackle, and loops to attach my stringer.

I keep a thermometer and pair of clippers attached to the zipper. It's surprisingly light and helps keep you warm in cool weather. Best of all, I can also use it on my boat, and it's always prepacked with the gear I need to fish for smallmouths.

When the water is in your comfort range, you don't need waders or hip boots to protect you from the cold, so I added a pair of wading shoes to my summer wading gear. The felt bottoms cling to slippery rocks much better than my old pair of tennis sneakers, and they also protect my ankles. Because they are nylon, they dry as quickly as my life jacket.

I spent some time thinking about this incident and wondering how it could have been avoided. First, I decided never again to wade alone in the Susquehanna River. Second, I needed something that would keep me afloat if this ever happened again. Shortly after this incident, I became the proud owner of a camouflage life jacket, a PFD (personal flotation device).

All too often, a day of wading turns into an unpleasant exercise in how to swim while holding a fishing rod. Worse yet, every year people drown or are injured because they didn't take one simple precaution. They didn't wear a life jacket. Many fishermen still mistakenly think that life jackets are only for boaters. They're wrong!

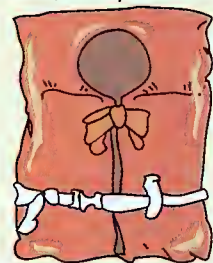
Modern PFDs come in a wide variety of types and styles. Many are specifically designed for anglers. An important consideration when purchasing a life jacket for wading or boating is proper fit. It should fit snugly and be adjustable so it can be worn over clothing on colder days. I recommend buying a life jacket from a store instead of a mailorder house. It can be fitted properly this way. Get one with pockets and rings to clip things to when fishing.

Moving water kills several anglers every year. Be smart. When wading or boating give yourself the added safety and convenience of wearing a life jacket.



TYPE I

Off-shore life jacket—over 20 pounds of buoyancy, designed to turn an unconscious person face-up.



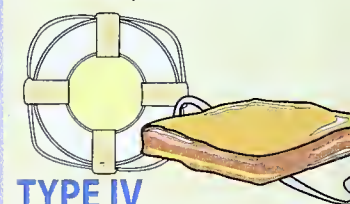
TYPE II

Near-shore buoyant vest—minimum 15.5 pounds of buoyancy, designed to turn an unconscious person face-up.



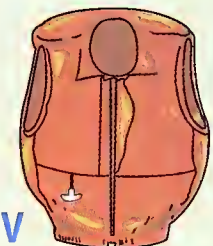
TYPE III

Flotation aid—minimum 15.5 pounds of buoyancy, **not** designed to turn an unconscious person face-up; more comfortable for water sports.



TYPE IV

Throwable device—minimum 16.5 pounds of buoyancy, designed to be grasped, **not** worn.



TYPE V

Special-use device—must be used in accordance with any requirements on the approval label.



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What is it?-see page 42

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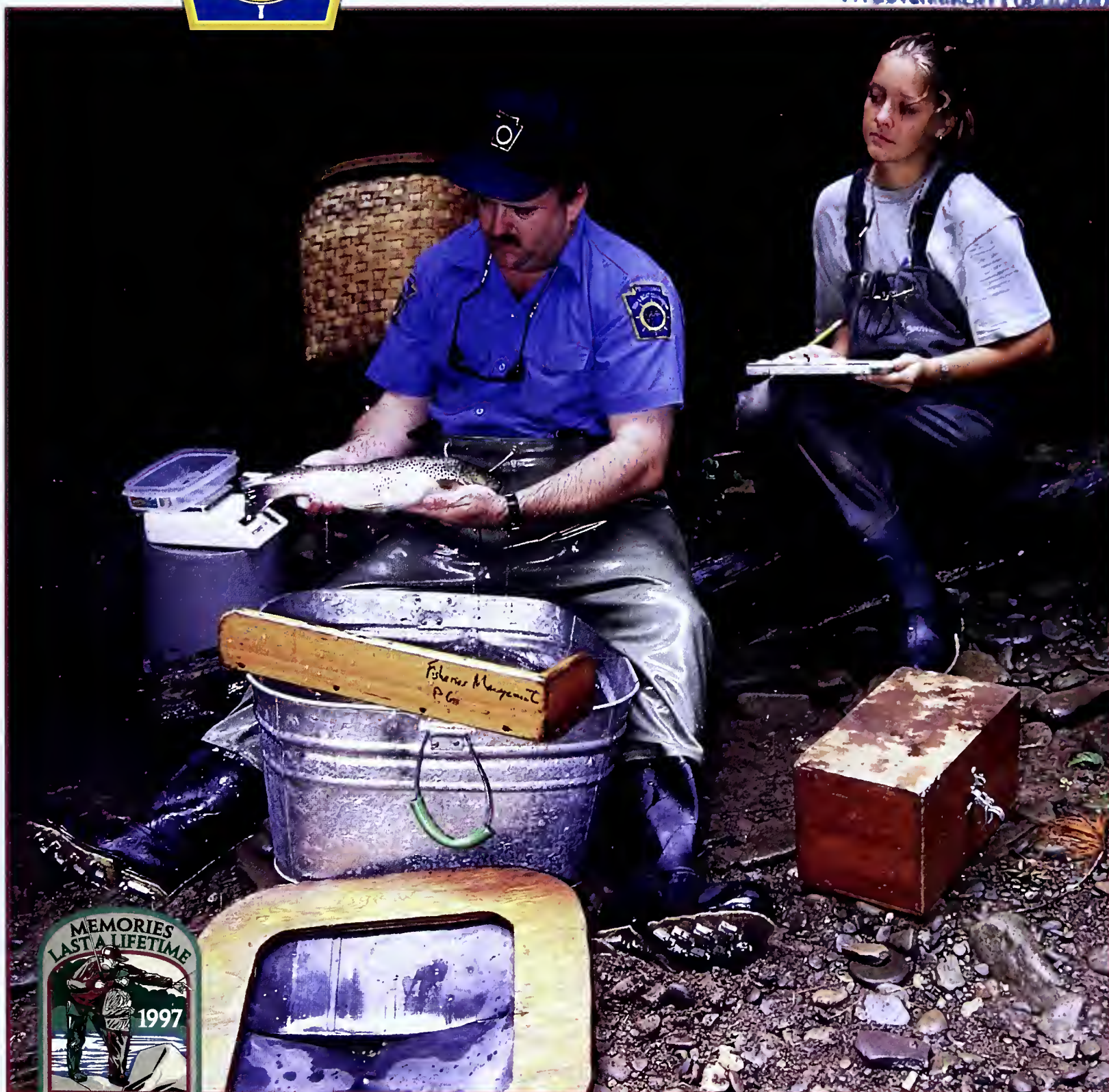
November/December 1997
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The Keystone State's Official Fishing and Boating Magazine

PA GOVERNMENT PUBLICATIONS



INSIDE: Smallmouths • Electrofishing • Depthfinders • Mayflies • and more!



PROTECT • CONSERVE • ENHANCE

Commission Successes

When I became Executive Director of the Fish and Boat Commission on October 3, 1994, I understood that many challenges faced the agency. The Commission receives no general tax revenue, and our financial resources, which are always limited, were under even greater stress without a long-overdue fishing license fee increase. I knew that, although our fiscal resources were weak, we were rich in our greatest assets—dedicated staff and the support of the state's anglers and boaters.

Now, three years later, I am pleased to report that the fiscal condition of the Fish Fund and the Boat Fund is improving. Working together with members of the General Assembly and sportsmen from across Pennsylvania, we increased fishing license fees resulting in about \$2.4 million more Fish Fund revenue for this fiscal year than we achieved during the same time period for 1995. At the same time, we've improved our efficiency and adopted money-saving procedures. As a result, the Fish Fund's beginning balance has grown from \$8.3 million to \$12.6 million, or an *increase of \$4.3 million* over the last two fiscal years.

The Boat Fund's beginning balance has *increased by \$2.7 million* during the same period to \$8.6 million. These increased balances are important because our revenues are cyclical: We receive most of our income in the late winter and spring. The beginning balance on July 1 of each fiscal year must carry our programs through the fall and early winter months.

In addition to taking positive actions to address fiscal concerns, the Commission has carried on programs and provided services to address the expectations of Pennsylvania anglers and boaters. We recognize the vital importance of concentrating on our core functions and accomplishing the day-to-day tasks that let us perform our mission and reach our agency-wide goals. I would like to highlight several of the special accomplishments of the last few years:

- **American shad restoration.** Efforts to restore migratory fish to the Susquehanna River Basin reached important milestones with the passage of American shad over two new major hydroelectric dams. Some 104,000 American shad have passed through the Conowingo Dam during the period April to June 1997. The previous record high was 61,650. Commission biologists have found that 60 percent of the adult American shad in the 1997 spawning run were fish born in the wild. The abundance of wild shad in the 1997 spawning run is an important benchmark in the restoration effort.

- **Publications changes.** We discontinued publication of *Boat Pennsylvania* magazine, and *Pennsylvania Angler* magazine has now become *Pennsylvania Angler and Boater*. The new magazine is a bi-monthly, and it contains 64 pages compared to 32 pages in the past. These steps resulted in savings from mailing and printing costs of more than \$120,000 per year. We also reduced the costs of publishing more than one million copies of our annual *Summary of Fishing Regulations and Laws* by making it a digest-size publication supported by advertising.

- **Interaction with the public.** The Commission has long prided itself on positive interaction with Pennsylvania anglers and boaters. To gauge public sentiment, we commissioned four public surveys in 1995, 1996 and 1997. We convened four special workgroups that bring together interested sportsmen with Commissioners and staff to address programs and regulations. We've increased our outreach efforts with public meetings in Erie (1995 and 1997) and elsewhere throughout the Commonwealth.

- **Partnerships.** The Commission recognizes the importance of partnerships with private-sector groups and organizations and other government agencies. In 1997, we established, for the first time, a \$15,000 grant program for our 189 co-op nurseries. The first-year success has lead the Commission to increase the grant program to \$25,000 for 1998. We added one full-time employee and five seasonal positions to work with volunteers in the Adopt-a-Stream Program. We also increased the maximum support for individual habitat improvement projects from \$500 to \$2,000. We're working to establish innovative access grant partnerships with local governments. For the last two years we've conducted an open house at the Capitol for all members of the General Assembly and the public. We've maintained excellent working relationships with Pennsylvania's other conservation agencies. The Natural Resources Workgroup, which includes the Secretary of DCNR, Executive Directors of the Pennsylvania Game Commission and the Pennsylvania Fish and Boat Commission, and the Governor's Sportsmen's Advisor, meets quarterly to discuss items of mutual interest and concern.

- **Announced in-season Saturday trout stockings.** The Commission created an announced Saturday in-season trout stocking program. These stockings of 284,000 trout occurred at 74 public lakes in 42 counties on Saturdays. An estimated 24,000 people turned out for the stockings. The WCOs' evaluation reports recorded overwhelmingly favorable reaction.

- **Major construction or rehabilitation projects.** The Commission has adopted a more systematic approach to addressing the need for infrastructure improvements. Included in these are seven hatchery improvement projects totaling \$2.6 million. During the last three years, the Commission completed eight major fishing and boating access area projects at a cost of \$560,000. A total of \$854,000 was dedicated to other projects such as dam repairs, a new maintenance headquarters and marina improvements.

- **Personnel.** We've reduced the Commission's full-time staff from 446 (authorized) to 432, and cut the Commission's seasonal staff from 167 to 131. These steps, and reductions in overtime, have reduced personnel expenditures by more than \$1 million per year from what we would have spent without these actions.



Peter A. Colangelo
Executive Director
Pennsylvania Fish & Boat Commission

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The Keystone State's Official Fishing and Boating Magazine

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On the cover

Coldwater Unit Fisheries Technician Bob Weber shows one of the large brown trout caught while electrofishing Cedar Run, Tioga County, last July. Summer intern Susan Avau assists in recording information on each fish. Those who watch Commission electrofishing operations are often astounded by one observation: Most streams hold far more fish, and far more large fish, than onlookers ever imagined. For the inside information on electrofishing and why this sampling method is so important to trout stream regulations, see page 17. The front cover was photographed by Art Michaels.





Leery about wading

I am an avid fly-fisherman, and enjoy fly-fishing for smallmouth bass (which I was introduced to in the Midwest U.S.). But I have found that unlike the Midwest, the smaller creeks and rivers do not hold the larger smallmouths. I have been told by many people that the Susquehanna is the river to fish for both quantities and size of smallmouths. Yet, I am leery to attempt to wade such a large river. I do use a wading staff and flotation vest to wade, and I'm in good physical shape (34 years old), but would not like to wade in dangerous waters.

So my question is: Could you suggest specific areas of the Susquehanna that are safe to attempt to wade. I am from the Reading area and so please take this into consideration as far as traveling distance. I also would be interested to know of safe areas to wade in the Scranton area, because I do have a relative who lives there, and I could stay on short fishing visits.

Thank you for your excellent publications, and time put into answering my letter.—Paul Dadamio, Sinking Springs, PA.

“Safe” areas of the Susquehanna for wading? There really aren't any, at least not where you're most likely to find big fish. The river's deep holes and rock-strewn irregular bottom make perfect habitat for smallmouths and other fish. The “safest” areas of the river are ankle-deep, flat, sandy areas, and you won't find smallmouths there!

You mentioned that you use a wading staff and wear a PFD while wading. Wearing a PFD is the most important safety

precaution for wading, and using a staff helps, too. You should also never wade alone. So putting these considerations to work, and with moving in the water prudently and slowly, you will probably be as safe as anyone. Remember, though, that it's not uncommon for wading anglers to test their swimming skills while pursuing smallmouths.—Ed.

No alcohol

My grandmother, who still enjoys fishing at age 80, subscribes to the *Angler & Boater*. I enjoy reading the magazine, and am writing to express concern over the alcohol issue.

The December 1996 issue (“Drinking, Boating and the Law,” pages 7 and 8) contained big news on the danger of drinking and boating. Very convincing and true.

The January/February 1997 issue featured the article “Remembering” by Joel M. Vance. This article contains some fine sentiments, but there is a conflict of messages. Note the following quote: “Four cans of beer in an icy spring, three for him, one was for me.” Other references to drinking and beer were included. What role model does this set up for the young?

Fishing on Codorus Creek in my younger days, on the first day of trout season, there was a drunken angler who was ranting and raving about my grandmother's high-heeled sneakers and being a general pain to everyone until authorities hauled him away.

In more recent years, while ice fishing on Canoe Lake and at Glendale, I heard obscenities and a loud-mouth disturbance that ruined the enjoyment of fishing because of people combining drinking and fishing.

Life is much better without alcohol. I say no to alcohol.—Nathan Shaffer, Alexandria, PA.

Trespass laws

Would you folks consider doing an article on trespass laws as pertaining to fishing, wading and boating in Pennsylvania? There is a lot of misinformation about water bordered by private or private and public lands. Can the public fish in these waters? Can we wade or float through? Can we walk on the bank around obstructions? These and other similar questions have different answers in different states and it would be helpful to see it in writing.

Could you also publish something telling where to find out this information?—John W. Pigott, Doylestown PA.

Thanks for the suggestion! The subject of access rights on waterways and their banks is called “riparian” rights. This topic is a tremendously complicated legal issue. Some of the laws we follow today on riparian rights date back to the 1700s. We have an article on riparian rights in the works, which we'll publish in a future issue.

We love to hear from readers on the kinds of articles they'd like us to print! Other readers who have suggestions, please send 'em in!—Ed.

Boat-cover article

I would like to commend you on the great job you do with *Pennsylvania Angler & Boater*. This magazine is full of useful information and tips. I like the concept of an “angling and boating” magazine all in one. This magazine is also very well-organized.

I would also like to commend Gary Diamond on his article “The \$19.95 Small-Boat Cover,” in the July/August issue. This idea is ingenious! I made my own boat-cover frame after reading this article. I already had a tarp, but I always had problems with it collecting water until I used this idea for a cover support. I recommend this to any small-boat owner. It keeps your boat much cleaner on the inside while protecting it from fading due to the weather. Great idea!—Joseph C. Flager, Jr., Altoona.

Fly fishing, fly tying articles

I have subscribed to your publication for more than 15 years. One of the features I enjoy are articles on fly fishing and fly tying, especially the latter. With your old format of issuing publications on a monthly basis, if one month did not have any fly tying article, I could always be sure the next issue would.

Under your new format, if one issue doesn't have any fly tying article, it's two months until the next publication. If that issue doesn't have a fly tying article, it'll be four months without a fly tying article.

I would ask that you have at least one fly tying article in each publication, or at least no more than one issue without any fly tying articles.—Steve M. Slavonic, Pittsburgh.



Weedy Lake Towhee

In a recent issue, which date I cannot recall, there was an article about the best largemouth bass fishing area for south-east Pennsylvania. Last August three of us senior citizens made the trip to Lake Towhee. It was very difficult to get into the lake area because of the poor sign markings, which was bad enough. It is a long trip from northeast Philly for us seniors, and when we arrived we were very disappointed.

The lake is very overgrown with weeds at the bottom, plus the lily pads at one end of the lake were so thick a boat with a weed whacker up front is the only way to get in to fish the area. The water was also very murky, which made it even harder to see all the weeds at the bottom.

I would like to suggest that in the future when you write an article about a lake that is supposed to have good bass fishing, that you do a better job of research.—*Leo Gealt, Philadelphia.*

I've fished Lake Towhee, and I know exactly what you're talking about when it comes to thick vegetation. The article you mentioned was probably "Southeast Pennsylvania's Little Big Bass," by Vic Attardo, which appeared in the July / August 1997 issue.

The article does mention the heavy vegetation, and that each year the weeds get pretty bad. The author said, "This Bucks County water is choked with thick, heavy vegetation, particularly at the upper end."

For largemouth bass, I suggest you try Marsh Creek Lake, in Marsh Creek Lake State Park, Chester County; or Hopewell Lake, in French Creek State Park, Berks County. These two lakes are probably closest to you, not counting Towhee.

In Towhee, you might also try what I've discovered. Use strong monofilament line, about 12- to 14-pound test, and with spinning tackle or baitcasting gear, attack those weedy areas with weedless spoons. Drag 'em slowly over the top of the weeds, and let them occasionally sink into holes in the vegetation. I've learned that in summer the water beneath thick vegetation is often surprisingly cool, and bass and other gamefish can be found right in the weeds or under the lily pads. One of the biggest largemouth bass I've ever caught, a five-pounder, came from such a weedy, overgrown lake.—*Ed.*

Personal watercraft comments

I have owned and operated a personal watercraft (PWC) now for about four years, and I am becoming increasingly aware of the tensions between boat owners and PWC riders. This disturbs me because I cannot envision myself ever trading in my PWC for a larger boat. They're just too much fun! I can, however, see both sides of the story.

I would welcome new toughened rules for the use of PWCs. I see too many careless, inexperienced, younger riders of these watercraft. There should be a licensing procedure for PWC riders as well as boat operators. A few bad examples of PWC use affect all the rest of us.

However, don't assume that the conflict is all the fault of the PWC rider. I have experienced numerous incidents with boat owners who behave recklessly and rudely. Too often they assume that since they operate a larger watercraft, they own the waterway and will take no action to avoid conflict with a PWC. Also, a boat leaves a much larger wake than the smaller PWC. This should be taken into account, especially in no-wake zones. A boat owner who anchors wherever he pleases has to realize that the waterway is as much a recreational playground for PWC owners as it is for him.

Please enact rules to keep the two warring parties away from each other. That includes keeping larger boats away from my PWC.—*Steven T. Styduhar, via email.*

Conflicts between personal watercraft and other recreational boats are a growing concern. While it appears that sales of PWC have flattened over the explosive growth of the past several years, they are still the largest segment of new boat sales in Pennsylvania. The Commission shares your concerns. We have advocated education of boat operators and have developed courses for various types of users. We have recently introduced a course just for PWC users. Unfortunately, since these courses are voluntary, we have relatively few participants. Each year, about 10,000 students participate. Given the well over two million people who boat annually, we are reaching a very small portion.

We also agree that education is not only for the PWC user. All boaters are responsible for their actions on the water. We know that many PWC users are inexpe-

rienced boaters. On the other hand, we also know that many experienced boaters don't have a clue about what constitutes safe boating practices. Everybody needs education. Pennsylvania is blessed with a tremendous water resource. But the increasing number of boats and boaters requires that all users be knowledgeable of their sport and respect the rights of others to enjoy the water in their chosen manner. The Commission can enact all the laws and regulations it wants, but until boaters learn to get along with one another and share the resource, we will continue to have conflicts.

Thank you for your thoughtful and insightful letter from the "other side" of the issue.—*John Simmons, Director, Bureau of Boating & Education.*

BACKTALK

LETTERS

Argue with the Commission. Applaud us. Advise us. The Fish and Boat Commission invites you to write letters to the editor in this space if you have an idea on *Pennsylvania Angler & Boater* content; a question or concern about the Commission; something to say about fish and fishing, or boats and boating; or a helpful idea for anglers or boaters. Letters to the Commission become the property of the Commission, and they are edited for clarity and space considerations.

PHOTOGRAPHS

Would you like a photograph of you and your catch to appear in *Pennsylvania Angler & Boater*? Send a photograph of you and your catch to PA&B for publication consideration in the "Cast & Caught" column. Please send only snapshots and prints—no slides and no pictures larger than 8x10. Include a self-addressed, stamped envelope if you want your picture returned.

Address correspondence to: Art Michaels, Editor, *Pennsylvania Angler & Boater*, P.O. Box 67000, Harrisburg, PA 17106-7000; or contact the Commission at its World Wide Web site: <http://www.fish.state.pa.us>.

Cleanup... The Circle of Caring Rolls Back to Their Youth

by Terry Brady



The way he saw it, he had a debt to repay. In his bid to set things right, Paul J. Greco, Jr., drove from the Collegeville home of his adulthood to the Norristown home of his youth. He could have been fishing, golfing, throwing the ball with his son, or getting the garden ready for spring. He could have tackled any of the million things suburbanites do on the first nice day of early April. Instead, he spent the day picking up other people's garbage.

Greco had company. He and some 60 other volunteers converged on Stony Creek, again making the waterway dividing Montgomery County's county seat a fit place for trout to call home. In a town that has little lustre, Greco helped shine one of Norristown's few gems.

At an early age, the 39-year-old self-employed businessman learned the value of this watery jewel. As kids, he and his ragtag buddies would hike up one side of the stream into the wilds of what was then the Norristown State Hospital grounds, and back down the other side to his hometown.

There were fish, salamanders and frogs to be caught, snakes to be glimpsed, pheasant cackles to be heard and monster white-tailed bucks to be remembered. And for Greco and his young buddies, and prob-

ably for most of us, a few sins of our youth to be committed against the provider of a joy that knew no limits.

Oh, the water. Van Morrison knew of the lock it had on men's souls, young and



Stony Creek cleanup organizer Charles Wood (right) and helper Paul J. Greco found their share of tires along Stony Creek.

old, when he sang about it in "Stone Me."

"As a kid, we lived on this stream. Knew every hole and probably fished every inch," Greco said. "But we also abused it. We threw a lot of things in here and probably never thought much about it.

"We're here today to pay back what we owe to this stream, to help it come back and give a better life to both the fish in it and the kids who will fish here when they are older."

Already, Greco's son, Paul, was staking out a claim on his future. Along with friends Eric and Adam Cusatis of Trappe, he was wrestling a traffic sign from the banks of Stony Creek. The trio then tackled a barn timber longer than all three combined.

Fished from the free-flowing stream that would be stocked with trout the following week were the light and heavyweight discards of our throw-away society. Washing machines, tires, scrap metal, bicycles, shopping carts, and, of course, the ever-present plastic cups and fast-food wrappers.

All bound for privately owned pickup trucks like that operated by Howie Brennan of Collegeville. Into his truck, bearing placards identifying it as a "Stony Creek Cleanup" vehicle, was a sodden mess

of trash and garbage that looked like it was scooped from a landfill.

"Won't hurt the truck," Brennan shrugged. "It's worth it. This stream has improved 100 percent with the cleanups, and the trout fishing just keeps getting better and better."

The stream is nourished with cold, clean water from springs on what is now the 600-acre state-owned Norristown Farm Park. It is protected by a ribbon of greenery stretching from its headwaters in East Norriton Township to its confluence with the Schuylkill River in Norristown. And it definitely supports aquatic life.

"One of the first things we picked up today was disposable diapers," she said. "Someone changed a baby near the stream and just left them there. I'm pleased with the results today but it's such a shame it can't be left this way all year-round."

Charles Wood knows of the stream's potential, and it hurts deeply when he sees it scarred. For 11 years, he and a dedicated group have helped the stream's fresh wounds heal. The rewards, he says, still soften others' transgressions.

"We have the same core of people coming out year after year, on sunny days and in the snow and rain," Wood said. "It may

be the first time I'll see some of them in a year, but we are all there for the same reason. We all have the same shared bond—we were playing and fishing in that stream when we were 8 and 9 years old. For us, it has a lot of history."

Walk with him along the Stony's banks, and he'll show you where a 25-inch smallmouth inhaled a kid's worm on the first day of the 1996 trout season. He knows every rock that gives the stream life-sustaining oxygen; every deep hole that provides the low temperatures late-season trout need to survive.

Eleven years ago, Wood mapped out the first annual Stony Creek cleanup. It would be, he said, a much needed welcome to a gamefish deserving the best—the trout. The first stocking by the Fish and Boat Commission came days after the first cleanup.

"It was the least we could do for a stream that has given us so much enjoyment," said Wood, a 46-year-old welder. "I truly love that stream and I want it for my kids and their kids to enjoy. I want to show the next generation what's here and what has to be done to continue to enjoy it."

Wood accepts no praise, expects no thanks. Instead, the Norristown resident reserves them for the 60 volunteers who converged on the stream last April.

But then, that is the man's trademark, say those who have known him since childhood and have answered his annual cleanup call. They took directions from him a few years back when he was hospitalized with a dangerous intestinal disorder; they shook



Proof comes in the form of a holdover 14-inch brown trout caught and released this past mid-March by stream cleanup volunteer John McGonigle of Norristown, who has fished the stream since it was first stocked in 1987, and who walks its banks almost daily.

"Is the stream getting better? You can see for yourself," said McGonigle, 61, pointing to a nearby dumpster slowly filling with trash. "You walk this stream and you'd never think all of that was here."

"But what really bothers me comes after the first day of the season," said the man who has not missed a cleanup in 11 years and carries a sand wedge converted into a handy litter stabber. "I'll come out here the second day of the season and it looks like we did nothing. Fishermen's trash is everywhere."

But the angler is not the sole culprit, pointed out cleanup volunteer Connie Rosewarne of Norristown. Proof positive filled her plastic trash bag.



The annual Stony Creek cleanup crew enjoyed a hearty lunch and then posed for a group photograph. Collegeville resident Howie Brennan donated the use of his pickup truck (top photo) to help transport debris and litter to a main pickup point. Brennan says the cleanups are worthwhile because trout fishing "just keeps getting better and better."

Cleanup...

The Circle of Caring Rolls Back to Their Youth

Determined young cleanup helpers cart away a street sign. Financial spirit, community spirit, and town-meeting fire combine to make the annual Stony Creek cleanup successful. The cleanup helped create the Stony Creek Anglers, Inc., a group of about 50 people who meet monthly to plan stream improvement projects and work toward the goal of establishing a cooperative trout nursery along the stream.

hands with him last spring when he was hobbled by circulatory problems.

"Chas is probably the most community-minded person that I have ever come across," said cleanup colleague Herb Holmes of Norristown. "His heart always is in the right place and he would give you the shirt off his back if it was the last one he had."

Not shirts, but plenty of cleanup equipment, instructions and warm thank-you's were passed out by Wood on that warm Saturday in April. Gathered were the grandparents and grandkids, truck drivers and attorneys, childhood friends and fishing buddies. From Wood they get work gloves, trash bags and cleanup directions.

And, eventually, a hearty lunch, prepared and served since the effort's outset by Wood's mom, Mary. But not before the armada of plastic soda bottles no longer bobs under the trestle bridge; not before the last of the plastic coffee cups are dipped from the "king's and queen's baths and other childhood hotspots; not before cases of empty beer cans tossed by the softball crowd are carted away; not before the last disposable diaper left by a lazy mom is bagged.

"We're making a difference," Wood reflects. "We see it each year in the decreasing amount of trash we pick up. There was a time when we would fill that dumpster with scrap metal alone. Now, it's just pretty much small stuff."

"When we were kids, it was so bad. We used to play in all the trash that tumbled into the stream, dive from all the scrap lumber that was everywhere. We never had to look far for rope for a swing. It was everywhere."



Trash may be down, but pride in a trout stream flowing through the heart of an urban area is mounting. Waterways Conservation Officer Gerald Barton saw it, heard it and appreciated it when he talked to Stony Creek supporters gathered at a meeting.

"It amazed me how many people showed up for that meeting," said Barton. "There was such a high level of interest in the stream and what will happen to it in the future. If we had this kind of interest in other waterways across the state, our job would be so much easier."

WCO for southern Montgomery County, Barton has six stocked trout streams under his jurisdiction. All flow a tough course: Litter, encroaching development, warm temperatures, massive runoff. Still, all hold their special places of beauty.

"What strikes me about the Stony, it actually blows my mind," said Barton, "is that you can stand in the middle of the stream, in the Norristown Farm Park area, and have to stop to think that you are less than a mile from downtown Norristown. I would venture to guess that most Norristown residents don't know what they have so close to home."

Some do. The annual cleanup this year spawned formation of Stony Creek Anglers, Inc. Some 50 strong, the group meets monthly to plan stream improvement projects and work toward its goal of establishing a cooperative trout nursery along the stream with the help of the Fish and Boat Commission.

"The whole thing has really taken off," Wood said. "It shows what can happen

when people get involved and concerned about a waterway."

It shows something else. In a town where, just blocks away, crack vials can be found in the alleys by day, and society's shadiest characters work their corners by night, good things still happen. Everyone there pitches in for the good of a waterway and the community.

A civic leader and retired prominent businessman each year picks up the tab for the cleanup lunch. A trash hauler donates a dumpster and disposal services. A steel company outfits the volunteers with leather gloves. A landscaping service provides chain saws and trucks.

Financial spirit. Community spirit. Town meeting fire. That "can do" approach that sees fire-gutted barns rebuilt, adversity overcome. Gathered on the banks at noon, their job done, all the elements were there. But the most important was the little guy with tomato sauce on his face, mud in his hair. The blonde-haired little miss with the floppy, over-size hip boots. It's their future they're shaping.

"We've always had kids at our cleanups," Wood says. "I've watched many of them grow up each year, go away to college and get jobs. But many of them keep returning."

"They come back because they want to be here, because they started out fishing and playing on this stream. It's comforting to know that when I'm old and gray and can't walk anymore, many of these kids will be here."

"It's a big circle here, really. That's what it all boils down to."

Seasonal Swing Smallmouths

by Mike Bleech



As fall takes us on its colorful transformation from summer to winter, after most anglers have abandoned our rivers and lakes 'til the next spring, smallmouth bass are also undergoing a transformation. They begin gravitating from their wide-spread summer haunts to select places where they gather before a long period of inactivity. They continue to feed in preparation for the frigid winter. This is the fall fishing peak, one of the two best times each year to fish for smallmouths.

The fall smallmouth fishing peak gets underway soon after the water temperature drops below 60 degrees. This period typically begins in late September in our northern counties and sometime in October in southern Pennsylvania. Smallmouths become quite inactive once the water temperature drops below 40 degrees. By late October, the fall fishing peak winds down in the north. It may last a few weeks longer in the southeast.

I have heard about good ice fishing for smallmouths in New England. But I can't recall ever seeing good smallmouth ice fishing in Pennsylvania. For bronzeback

enthusiasts, the fall peak is the last good sport we enjoy until the spring trophy bass season on Lake Erie.

Calling this entire period a fishing peak is misleading, though. Even though smallmouth fishing might be good anytime during this period, short-term conditions bring about the peak, or peaks. The general trend during this period is falling water temperatures. Warm spells, often called Indian summer, stop or reverse this trend. This is when the best fishing usually occurs.

Could there be a better time to be on a Pennsylvania lake or river than during Indian summer? A gentle, balmy breeze sends the most advanced leaves on their slow descent to the ground, while leaves in many shades of red and yellow still stand out against the deep greens of the conifers. Migrating waterfowl wing overhead. Soft, white clouds drift slowly through a pale-blue sky. What a relief! One less day of cold rain. One more day without snow. One more day when the sun feels warm on the back of your neck, and there is no need for cumbersome foul-weather clothing.

Taking advantage of the fall smallmouth peak calls for precise fishing. Smallmouths tend to congregate in confined areas where they probably spend the winter. If your casts are not right on the mark, you stand no chance of hooking them. Along a mile of shoreline where you found them scattered all summer, perhaps only three or four areas no more than 10 yards in diameter will hold nearly all the smallmouths. There is a lot of water with no bass in it, but once you find them, fishing can be fabulous.

Location is the key to fall smallmouth bass fishing. Catching them is the easy part.

Hotspots in natural lakes

If you are a classic structure angler, you have to love natural lakes. Here is where you can often find big smallmouths along the dropoffs adjacent to long points. Some reservoirs, Pymatuning, for example, have this kind of structure, too. However, most Pennsylvania reservoirs in hilly or mountainous regions, such as Raystown Lake, have steep banks, so most points do not extend far underwater.

A classic natural lake point (see Figure 1) begins close to shore as a broad, rocky flat. It might, or might not be accompanied by a point above the waterline. Depending on its size, such a point might hold numerous smallmouths throughout the year. They spawn in gravel-bottom areas in spring. During summer they spread across the flat to feed, and then return to deeper water or cover during periods of inactivity. And during fall they congregate in certain places where they will spend winter.

Fall congregating areas are usually at steep structure where the smallmouths can quickly move from shallow water to deep water. At this time of the year they do not move nearly as much as they might during summer. There are two major points in Figure 1, one on the north side of the lake, and one on the south side. The steepest dropoffs on these points are marked "A" and "B." In all likelihood, there will be big smallmouths at all four places.

Which spots are best depends mostly on water clarity. In water with a bit of color, generally a greenish tint, the places marked "A" are deep enough. But in very clear water, the places marked "B" would probably be better, especially for the biggest smallmouths in the lake. One of the general rules of smallmouth bass fishing is that if you want to catch bigger fish, move to deeper structure. If you are catching smallmouths in the one- to three-pound

class at one of the places marked “A” and you know there are bigger bass in the lake, definitely try one of the places marked “B,” or look elsewhere for deeper structure.

Anyone with a basic knowledge of structure fishing and the ability to read a sonar/fishfinder will be able to find all of those places, though, especially if structure maps of the lake are available. Heavy fishing pressure crops the bass at 12 inches. You might be able to catch bigger smallmouths at less obvious places.

One of my finest fall days occurred on one of our small natural lakes in the north-west corner. Actually, I had intended to fish for largemouth bass. But as I fished a jig and pig through a weed bed, I encountered a small, rocky slot less than 10 yards wide, extending from shallow water into a depth of about 14 feet. There were a few weeds, but mostly the bottom was rocks. I boated five bass on five consecutive casts, four smallmouths and one largemouth, and not a one weighed less than four pounds.

You will probably not find smallmouths in a weed bed that grows from a completely soft bottom. However, the bottom in some weedy areas is a mix of rock, gravel, sand and muck. These spots may hold a few smallmouths—maybe not enough to recognize the area as good smallmouth water during summer, but when all of these bass congregate during fall, fishing can be superb at places like “C” in Figure 1. And probably because these places are rich in food, they are often occupied by very large bass.

Inconspicuous dropoffs at the right depth are another likely place to find the biggest smallmouths in a lake. Look for them in an area where you know there are smallmouths, such as a long stretch of flat-rock bottom. These dropoffs are between the lines of lake maps, as at “D” in Figure 1, or they were in some cases missed by map-makers. The only way to find them is to explore.

To find hidden dropoffs, first determine the depth range in which you want to locate structure. Then run your boat in a direction generally parallel to shore, but zig-zagging over depths you want to cover. In most Pennsylvania lakes, I suggest that the bottom of the dropoff should be at least 10 feet deep. A dropoff whose rim is just two or three feet down from the water’s surface may be enough to hold smallmouths.

Hotspots in manmade reservoirs

Smallmouth bass behave quite the same no matter where they live. But they must

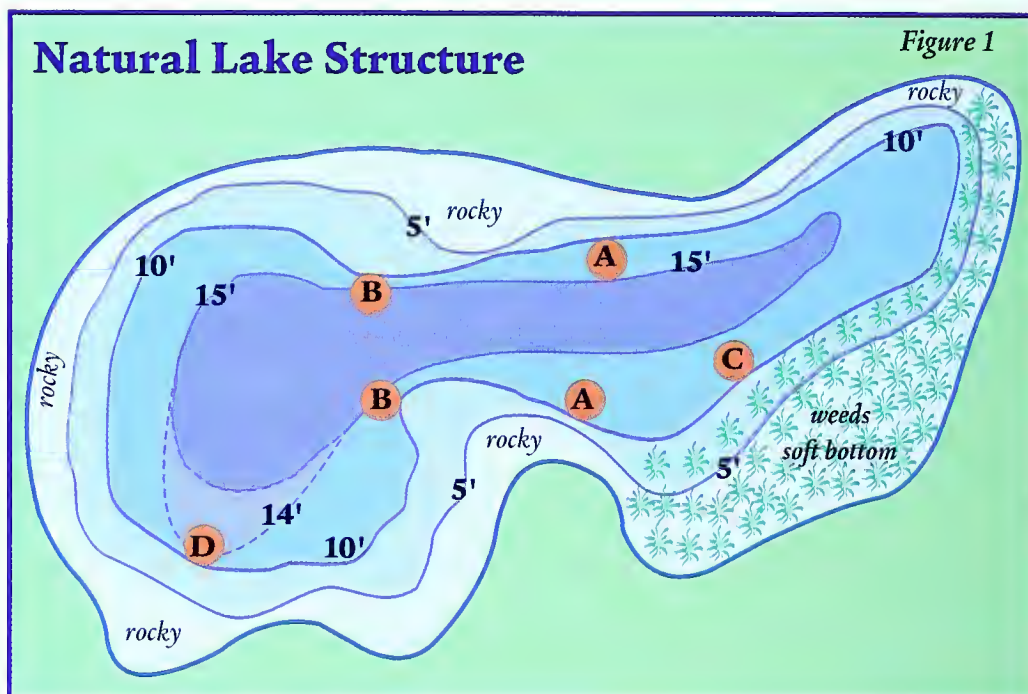


Figure 1. Natural lakes have a great variety of structure. Most fall smallmouth hotspots are rocky dropoffs like those marked A, B and D. Less obvious structure includes the rocky slot through the weed bed at C and the dropoff at D. These spots, which often hold the biggest bass, probably don’t appear on lake maps.

do this within the confines of the available habitat. The bottoms of reservoirs, particularly in hilly or mountainous terrain, are usually shaped differently than the bottoms of natural lakes. If the structures I described for natural lakes are present in a reservoir, they will likely be good places to fish for smallmouths during fall. But here are some structures

common to reservoirs that hold smallmouths during fall.

Most of the fall smallmouth congregating areas in steep-sided reservoirs can be classed as ledges, small, flat areas on the otherwise steep slopes (see Figure 2). One type that is unique to manmade reservoirs is abandoned road beds, marked “A.” These are flat all along the road beds,

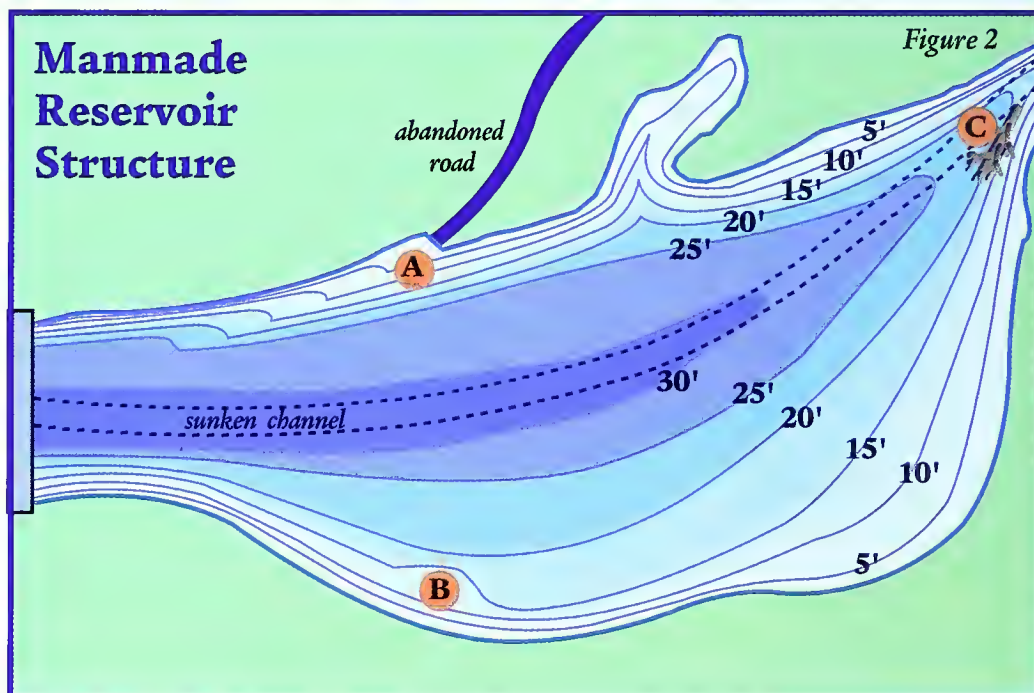


Figure 2. Manmade reservoirs might have structure similar to lakes, but most often fall smallmouth structure is some form of ledge like the abandoned road bed at A, or the natural shelf at B. Smallmouths might also gather in a rocky area of a sunken channel, especially if there is some cover, like the sunken tree at C. However, siltation sometimes covers rock bottom at the heads of reservoirs. You will seldom find smallmouths far from a rocky bottom.

but drop quickly on their outside edges. Smallmouths move onto the road bed when they are active, and drop down the steep bank when they are not. Locating road beds is simple because they are visible above the waterline, and they are marked on good lake maps.

Natural ledges are much more difficult to locate. At the Allegheny Reservoir, a flood control reservoir which is lowered more than 30 feet each winter, anglers look for structure when the water level is low, often photographing for reference. Locating small ledges underwater is difficult even with the best sonar-fishfinder, unless they show up on a lake map, as at "B" in Figure 2.

Smallmouths also congregate in a sunken channel, particularly where there is something unique about the channel, at a stump, a sunken tree (marked "C"), or on a pile of boulders. In a reservoir that's inhabited by both smallmouth and largemouth bass, largemouths are more likely to be at a place like this. The closeness to a rocky flat will probably be the determining factor.

Hotspots in rivers

River structure is often shallower than lake structure, which is simply a matter of availability. Current becomes a contributor. Steep structure, so important in lakes, is absent from long stretches of good smallmouth water. Still, there is some continuity.

In smaller rivers or creeks, fall smallmouth hotspots are often simply the deeper pockets where there is mild current, as depicted in Figure 3 at "A." Like most fish, smallmouths conserve energy during winter by avoiding current as much as possible. Except that they probably do not move as far or as shallow, smallmouths inhabit the same water year-round.

In larger rivers like the Allegheny, the lower Juniata, the Susquehanna and the Delaware, other structure becomes more important. Here again, the draw is steep structure, if it is available. Look for a dropoff whose rim is three to six feet below the surface with a total depth of eight feet or more.

The presence of large boulders is a plus at any structure, or by themselves. Piles of boulders which erosion has caused to tumble into the river are usually revealed by boulders along the shoreline. Look for smallmouths along the deeper downstream side of the pile, as at "B" in Figure 3.

Long dropoffs are common in rivers. A few boulders can make one place along

the dropoff better than anywhere else.

Smallmouths sometimes congregate during fall at the downriver ends of pools, especially where the depth changes quickly, as at "C" in Figure 3. Boulders, sometimes no bigger than a bread box, or abrupt depth changes in bedrock, are present at most of the better places.

Gravel shoals at bends in the river, marked "D," or at the mouths of tributary streams, marked "E," are excellent fall structure. Look for tributaries that enter the river out of the main current. The powerful river current washes material away faster than a tributary can deposit it.

Rest of the story

As you look in any waterway for structure where smallmouths congregate during fall, keep in mind that smallmouths prefer rocky structure. Concentration areas are usually at the bottom of steep, rocky structure, though the area at the bottom of that structure might not be rocky.

as the water temperature drops below 60 degrees, while the smallmouths are still aggressive. They will hit topwater lures and crankbaits used with normal retrieve speeds while the water temperature is in the 50s.

The best fishing for big smallmouths, in my experience, occurs while the water temperature is in the 40s. But you have to present lures or baits slowly very close to the bass. I use jigs if the smallmouths will take them, but while I am searching for a concentration of smallmouths, I tip the jig with a lively chub. A pork strip added to the jig, instead of a chub, also makes it more attractive.

When I get very serious about catching big smallmouths, I use a live chub, stoneroller or shiner on a plain hook, with a splitshot just large enough to keep the bait close to the bottom. This bait is still-fished, or retrieved very slowly, pausing often for minutes at a time, through concentrating areas. Besides being more effective than artificial lures, research has

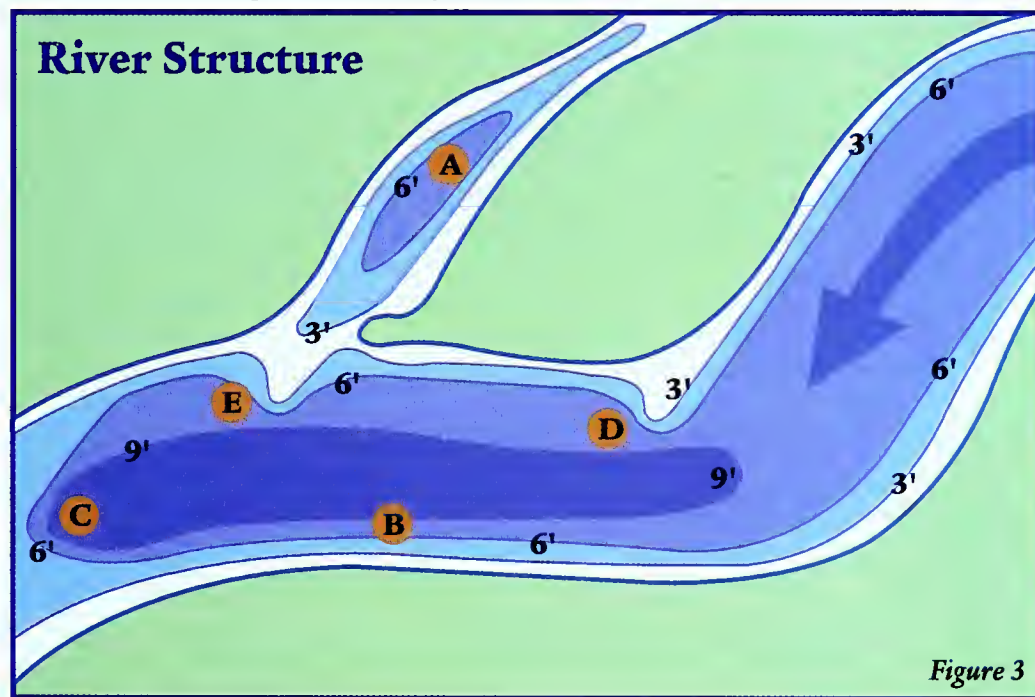


Figure 3. In smaller rivers and creeks, the best fall smallmouth structure might simply be the deepest parts of the pools, such as the area marked A in the tributary creek. In larger rivers, look for dropoffs like those at D and E. A pile of boulders, like that at B, is often the hotspot along a long dropoff. Another likely place to find smallmouths during fall is at the tail of a pool, C, if the depth changes quickly, and better still, if there are boulders.

The larger smallmouths tend to hold at the best available structure. This might be one of the structures I have described, but it does not have to be. The best way to locate smallmouths might be by covering a lot of water. However, this can't be done too quickly once the water cools. Fall smallmouth fishing calls for slow retrieves, getting slower as the water temperature falls.

Begin looking for fall hotspots as soon

revealed that live-bait fishing can be less harmful to bass than using artificial lures with treble hooks.

And most important, don't be a fish hog! A handful of anglers could seriously deplete the big smallmouth population of a lake or a long stretch of river while big smallmouths are congregated during fall. Keep one for the wall, perhaps, and if you hook a bass severely, eat it. Release the rest, please.



“FISHING & BOATING MEMORIES LAST A LIFETIME”

Contest Winning Entries

CONTEST WRAPUP

What a pleasure it was to read these entries! I enjoyed them all because, like many of our readers, my fishing and boating memories are among my earliest recollections. For this reason, I felt a connection with each writer.

We received a total of 26 adult entries and four youth entries. First Place in the Adult Category was captured by Hal Boyer, Perkasio, with his tale about a two-week camping and fishing trip during the summer of 1943. Toby Jones, age 15, McAlisterville, took First Place in the Youth Category with his story about his fishing trips with his brother.

Because there were so many fine submissions, the Adult Category had a four-way tie for Second Place. Those winners were William C. Ragosta, Coudersport, for “Memories of Dad,” S. James Miller, Ligonier, for “Lake of a Lifetime,” Michael Rock, Lancaster, for “First Day of Trout Season,” and Ronald J. Olescycki, New Castle, for “Testimonial to a Father, Fisherman, and Friend.”

All other entries in the Adult Category were deemed Honorable Mention winners.

The Youth Category’s four entries resulted not only in a First-Place winner, but a three-way tie for Second Place. The Youth Category Second-Place winners were Frank Brown, age 14, Washington, PA, for “Catch of the Day,” Jonathan Philip Gahman, age 11, Bethlehem, for “Fishing with Grandpa,” and Caleb Jardel, age 7, Cresco, for “Ice Fishing Trip to Remember Always,” a story he dictated to his father.

First-Place winners will receive a framed, signed and numbered print of the 1997 trout/salmon stamp painting, and limited-edition 1996 and 1997 patches. Second-Place winners will receive the 1996 and 1997 limited-edition patches. Honorable Mention winners will receive a limited-edition 1997 “Fishing & Boating Memories Last a Lifetime” patch.

Beginning in this issue, the winning entries appear. We’ll print as many entries as we can. Thanks to all who contributed!—Art Michaels.

ADULT FIRST-PLACE WINNER

The Last Frog

Hal (Sonny) Boyer, Perkasio, PA

It was the summer of 1943, the war years. Gas rationing was in effect, and my father was drafted, serving in the U.S. Navy. Thanks to an aunt and uncle, I was going to spend two weeks tent camping and fishing on Perkiomen Creek near Collegeville. I was 13 years old.

Along on the vacation were their son, Ronnie (10 years old), and my aunt’s step brother Ted, who was one year older than I. We shared the campsite with my Uncle’s fishing partner, his wife and their son, Junior (age 12).

The campsite bordering the creek was primitive but comfortable with two large sleeping tents and another tent for cooking and eating.

We had one wooden row boat that got a good workout each day from four active boys. Although most of our fishing was still-fishing from shore, we did catch a few bass trolling lures while rowing.

The boat was primarily used as a platform from which to

swim. We would take it out to a deep hole in the creek and then dive from the boat, swimming around while someone rowed. We had a wonderful two weeks fishing, boating and swimming.

Junior was not much of a swimmer, but he did like to fish and hunt frogs. Bullfrogs were large and plentiful in the area along the creek. We could hear them every evening as they bellowed and grunted their mating calls. It became a very familiar sound.

One warm, quiet afternoon, after fishing and swimming, the four of us decided to go frog hunting from the boat. Junior had a 22-caliber single-shot rifle that was perfect for our planned expedition. As we set out in the boat, I had the long-handled net that could reach a good six feet, Ted was at the oars, and Ronnie was a spotter for our crack rifle shot, Junior.

After an hour or so of successful hunting and netting the frogs from the boat, we had more than a dozen huge granddaddy frogs with plump legs. We were a good distance upstream, so it was time to head back to the campsite before dark. As we turned to head back, Junior spotted another whopper of a frog. He said that this would be the last frog that we would take.



*Summer of 1943 the Perkiomen Creek near Rahns, PA.
Left to right are Ted, Ronnie, Sonny (the author) and Junior.*

The boat rocked a bit as we tried to quiet down while Junior took aim and fired. The rifle cracked, and I could immediately see that it was not a clean hit. I stood ready with the net as the frog, wounded and stunned, began to thrash its way back into the water. However, the boat was a bit too far from shore to allow me to reach the frog with my net.

Before we could maneuver the boat closer, Junior put down the rifle and decided he would hop out of the boat to grab the frog in his hands before it escaped into the water. He hastily rolled up his bib overall pant legs as far over his knees as he could. Then he jumped out of the boat in pursuit of his bounty.

As he splashed into the water, he completely disappeared. Much to our amazement, only his hat remained on the rippled surface, reminding us where he had entered the water. Stunned

by his sudden disappearance in what we thought was only a foot of murky water, we all looked at each other and then burst out laughing. Just then a hand came thrashing out of the water followed by the coughing, sputtering face of our sharpshooter. I reached out, grasped his hand, and with some struggling pulled him back into the boat. As I said, swimming was not one of his strong points.

Out of curiosity we took an oar and pushed it straight down into the water. It was well over six feet deep, and so close to shore.

That ended our frog hunting expedition as we rowed home, still chuckling about Junior's sudden disappearance in his heroic efforts to capture that last frog.

It certainly was a boating and fishing vacation I shall always remember.

YOUTH CATEGORY FIRST-PLACE WINNER

Sore Head

by Toby Jones, age 15, McAlisterville, PA

"Let me pull it out," Dan said, in a half-laughing, half-anxious voice.

"No, I want Novocain! Those pliers are covered with fish slime, anyway, and I don't need it to get infected," I replied.

"Come on, you're a wimp; it will be quick and won't hurt at all," Dan said.

For a moment I almost agreed. Then I remembered how much it hurt going in, and they say a fish hook hurts a lot worse going out.

The trip had been going great up until this point. We ar-

rived at Lost Creek, a small trout stream in central Pennsylvania, around 6:45 on that warm July morning. Upon arriving at the stream, we noticed that it was just a tad discolored, so we tied on the brightest spinners in our tackle boxes. Mine was a chartreuse and orange Rooster Tail and Dan's was a chartreuse and orange Mepps.

It didn't take long for us to get into fish. I made a cast upstream from a large rock and promptly hooked a big old rock bass. Dan saw this, so he cast his spinner in the same place, maybe a little farther upstream. I was busy unhooking my rock bass when the next thing I heard was Dan yelling, "Big rainbow!" It sure was! After a lot of whooping and hollering, I heard the familiar phrase, "Get in there after him!"

I did, but I didn't have as much luck trying to tail-land that brute of a fish as I did last winter with Dan's 21-inch brownie. After a whole lot of thrashing and trying to avoid Dan's 4-pound-test line, Dan got the tuckered-out rainbow into the shallow water where we could land him. The fish turned out to be



"FISHING & BOATING MEMORIES LAST A LIFETIME" *Contest Winning Entries*

21 inches long and around five pounds—Dan's largest trout ever.

We never expected to top that, but that wouldn't stop us from trying. We kept on fishing and caught plenty of fish, including a bunch of smallmouths and a few more trout, but none was to rival the first.

We had just rounded a bend when we saw a wonderful looking hole, just ahead. We pretty much raced to get to it. Dan got the first cast and latched onto a beautiful 14-inch smallmouth. I figured that I would get a jump on Dan and maybe catch a big one out from under him, as he did to me earlier. So I gathered up all of my strength and cut loose a cast that would have—notice I said "would have"—gone clear to the front of the pool. I did hook something on that cast; however, it was I, and I had a treble hook driven into my head, just behind my ear.

So that's how I ended up wincing in pain and trying to convince Dan that I didn't mind being a wimp, because I wasn't about to let his fishy slime-covered hands "operate" on me. After a lot of arguing and complaining, we decided to just cut the line and keep on fishing.

We fished for about two more hours. All the while I had a size 0 spinner dangling from my head. We each caught a few more trout and a bunch of smallmouths, rock bass and chubs.



The author (left) and his brother, Dan, after the Lost Creek fishing trip.

This was definitely a fun and successful trip, although it didn't come without costs. My dad got a bill for \$100, for minor surgery and anesthesia, and I got a sore head.

This was just one of Dan's and my many fishing trips we have had together. Each of them is special in its own way. It is a reminder that fishing and boating memories do last a lifetime.

4-WAY TIE FOR ADULT SECOND-PLACE WINNER

Memories of Dad

by William C. Ragosta, Coudersport

We all have childhood memories, and most of them are fond memories of family and friends. But my fondest memories are of boats and fishing trips taken with my dad. My very earliest memories are of trips to my grandparents' farm along the Raystown Branch. Mom and dad would pack up the Volkswagen bus with any of their 11 children who weren't busy with sports, school plays or the like, and off we'd go to Huntingdon. The farm sat right on the river's edge, and the first thing on the boys' minds was hitting the river for the plentiful smallmouths and rock bass that lived there. My dad was never much of a fisherman, but he always seemed to revel in his children's enjoyment of the sport. In fact, it was at a fairly young age when I was able to outfish dad on almost every trip, and although I would always dish out plenty of good-natured ribbing, dad took it all in stride.

When I was 10 years old, my father's job took the family to Bellefonte. Initially, we didn't want to leave our

friends and schools, but when dad explained that Bellefonte was the home of one of the finest trout streams in the east, I was convinced that it was the only place to be.

Even though the Raystown Branch had the distinction of giving up my first smallmouth, perch and walleye, it was Spring Creek that coughed up the first native brown trout to a young man who had an insatiable appetite for anything related to water. As an adult, I still enjoy trips back to Bellefonte to fly fish the famous stream that still grows monstrous streambred browns.

My mother is now an accomplished writer, but I'll never forget one of the first novels she published. I was still a boy when she told the family that she had sold her book, and she unselfishly turned the check over to dad.

Dad's lifelong dream was to own a boat, but with the financial strains of a large family, it never became a reality until he was a grown man with 11 kids. Dad was like a kid as he shopped for that first boat, and Mom's only concern was that it would be safe for the kids. The children were all in a frenzy when dad returned home with a 1968 Duocraft complete with a 50-horse outboard.

Although dad was never much of a mechanic, he somehow kept that boat running well enough to teach all the kids to water ski. Each Saturday and Wednesday throughout the summer was an opportunity for the family to boat together, and my



Author's father, Vincent Ragosta.

dad always took the opportunity to teach each of the kids about safe boat operation. Dad's recounted his days in the Navy time and again on those early outings.

When I was a teenager, dad outgrew the old Duo and traded it for a brand new 16-footer that was decked out for fishing. Some of the other kids tired of the boating trips, but for me, the desire to be on the water only became stronger. Most of the other kids had families of their own or were in college, so I got to spend weekends alone with dad. I didn't realize it at the time, but that time with dad was the greatest gift I had ever been given.

It was about at this time that my dad contracted cancer. In the time before dad passed away, we were able to fish several bass tournaments together, and I spent a lot of real quality time with dad. Many kids never get the opportunity to do things one on one with their parents, but because of that boat and my dad's unselfishness with his time, I'll have fishing and boating memories that will last a lifetime.

Two of my lifelong goals were for both of my parents to see me get married and to raise children. We were taught from a young age that nothing is as important as family. Unfortunately, dad died before I married my wife, Kelly, and before we had our first son, Ben-

jamin Vincent. Ben will never have the pleasure of meeting his grandfather, but he will always know what kind of man he was. Ben was born on his grandfather's birthday, and my wife and I borrowed my dad's name, Vincent, and gave it to our son. I've pledged to try to be as unselfish with my son as my dad was with me. I've already had young Ben out in my boat, and we're beginning his memories to last his lifetime.

There's no better activity for parents to bond with their kids than fishing and boating. Many of the problems that families have today could be fixed by the kind of fun that my siblings and I enjoyed on the banks of the Raystown Branch. It doesn't have to be expensive, either. A canoe or johnboat can be purchased for a few hundred bucks. If a boat isn't in the cards for your family, have a picnic at one of our beautiful state parks, or innertube down a stream with your kids. They'll never forget the time you shared.

Three of the boys in my family now own nice fishing boats and take their kids fishing. My love for nature that was passed on from parents and grandparents led me to become a Wildlife Conservation Officer, and my desire to do that traces back to a five-year-old boy wading at his father's side. I can't think of a more fitting tribute to my dad.



Author with his son, Ben.

YOUTH CATEGORY **SECOND-PLACE 3-WAY TIE**

Catch of the Day

by Frank Brown, age 14, Washington, PA

It was one of those mornings where you knew that something great was going to happen. Since the time you woke up, you felt great, like something good was going to happen to you. This is how I felt on this late April morning. My brother and two friends of my Dad's went with me. The night before they were telling me about this guy who holds a trout fishing tournament at his private pond every year. They had said that he gathers a pool up and pays off to the person who catches the largest trout.

That night I was excited about going fishing the next morning. On the morning of the tournament, I was very excited at the thought that I might be the one to take the pool.

Upon our arrival at the pond, I met the man who owned it and ran the tournament. Since we were the first ones to arrive, he said, "I hope you win the pool for the biggest fish."

As we gathered our fishing gear up and took our spot, more people started to arrive. It was almost casting time. You could see the trout coming up to the surface. As the guy called, "line in," everyone cast. It looked like a huge spider web. I clev-

erly waited because I didn't want my line to get tangled with someone else's. As I cast in, a guy yelled, "I got one!" It was a nice rainbow trout that measured about 18 inches.

Everyone said that it was the fish of the day. He was using chartreuse trout bait nuggets. Since he thought it was the fish of the day, he quit and walked over to me and said, "Here, use this if you want to catch the big ones." I said, "Thanks for the advice," and switched to the nuggets.

It was about noon when I was bottom fishing and saw my line tighten. I felt the weight of the trout on my pole. Finally, he came to the surface without a struggle. I had to pull him in around a set of cattails that would have cut the line for sure. Others on the bank grabbed a net. They also knew it was a big fish. When I got it into the shore, they measured it alongside the other guy's trout, and it was much bigger. His trout was 18 inches, while mine was a whopping 24 inches!

As the owner of the pond raced downhill, he said, "Man, that's the biggest trout I've seen taken out of this pond in a long time." At that moment, I was probably the happiest person in the whole world. As the clock counted down to the end of the day, he said, "Aw, heck with it; here's the pool. You win."

After he congratulated me, I thanked him for letting me fish at his pond. He told me to come back any time I wanted. On the way home, I called my Dad and told him that he better find a good taxidermist because I had the "catch of the day!"



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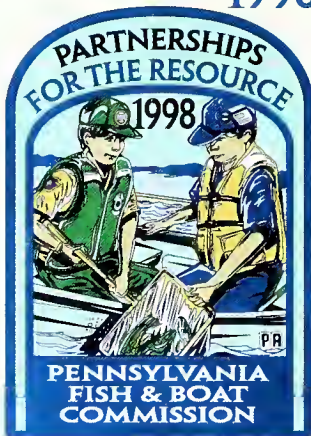
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Electrofishing and Managing Pennsylvania's Trout

by Robert Weber

Last summer, the Commission electrofished tiny Lyman Run in Potter County. After two days of seeing many trout that were less than 11 inches, imagine our surprise when a 22-inch brown trout popped up from seemingly nowhere!

On another survey, we electrofished a formerly degraded trout stream in northern Pennsylvania. In just one pool we captured 30 brown trout over 14 inches long, and six of those trout were between 20 and 24 inches long!

Last August, we surveyed a section of Cedar Run, Tioga County. The spectators who observed hooted and hollered in disbelief as they saw trout after trout in the 18- to 20-inch size coming to our nets in one long, deep pool.

People who watch electrofishing operations are almost always surprised by how many fish are actually present in a particular

stream stretch. I often wish that I had a dollar for every angler who observes an electrofishing survey and walks away shaking his head in disbelief of how many fish are actually in a stream or stream section.

On one occasion an angler confidently told us that we would catch only brook trout in a particular stream because that's all he ever caught there. When we finished electrofishing, our sample revealed that 90 percent of our catch were brown trout. I can't recall ever seeing a jaw hang that low. Many spectators are also surprised to learn how many different species of fish are actually present in their favorite streams.

Electrofishing is the Commission's primary trout stream sampling method. The information gathered this way forms the basis for most of our current- and future-trout stream regulations.

Preferred sampling method

Electrofishing is the most preferred method for sampling trout in our streams. Sampling trout with electrofishing gear is efficient, quick and relatively safe if properly conducted by trained personnel.

Commission biologists use two types and three different methods of electrofishing. The type and method depend on the size of the water and the water's ability to conduct electric current.

We use either AC or DC current operated from either a johnboat, towed boat or backpack unit. The DC current works best in waters with a high potential to conduct electricity (hard waters and limestone streams). AC current is most effective in waters with a lower potential to conduct electricity (soft waters and free-stone streams). Where appropriate, DC current is the most preferred type of current because it has the least potential to harm individual fish.

In addition, the Commission uses the type of electrofishing unit that best matches the size of the water we are sampling. For example, it's difficult to obtain smallmouth bass abundance data from the Susquehanna River using small backpack-mounted electrofishing gear. A johnboat-mounted electrofishing unit is more suitable for this type of waterway.

Kinds of information collected

The type of data we collect assists fish-



Cedar Run,
Tioga County

eries managers in describing a fish community by its species composition, estimates of abundance and dynamic rates (reproduction, growth and mortality). Consider more specifically the kind of information electrofishing helps us gather:

- **Species occurrence.** Electrofishing is used to identify which species are present in a particular stream.

- **Catch per unit of effort.** A relative index of fish abundance in a stream. This index can be compared with indices from other streams or from previous samples to reveal long-term trends in fish abundance. This information is usually expressed as the number of trout caught for each hour of electrofishing.

- **Population estimate.** Using electrofishing, fisheries managers can compute, with some certainty, how many fish are present in a portion of a stream. In fact, for trout management almost all management decisions are based on knowing the abundance of the current trout population. For example, deciding how many trout to stock in a particular stream is based largely on how many wild trout are already present there. If excellent numbers of wild trout are present, there is no need to stock. However, if the stream supports very few wild fish, then the stream is probably a good candidate for stocked trout management. In addition, population estimates are used when a management change has occurred, such as a change in regulations. Fisheries managers often monitor trout population abundance to see what effects, if any, a change in regulations had on a trout population.

- **Population dynamics.** A large part of knowing what is going on with a trout population is understanding the basic life processes of the population. These processes include reproductive rate, growth rate and mortality rate. Most of this data can be collected only by taking specific measurements from as many fish in the population as possible. Growth and mortality rates are routinely computed by taking scale samples of individual fish in the population along with length and weight information from those same fish. Electrofishing lets fisheries biologists



capture large numbers of fish in a short period of time, thus making these measurements much easier to obtain.

Even though I have not seen any cost-effective comparisons of electrofishing, I would be willing to predict that based on the amount of data collected in a short amount of time, sampling with electrofishing is the most cost-effective method of gathering scientific information on fish.

Who electrofishes?

In the Fish & Boat Commission, the area fisheries managers and their staff do the



(Top photo) A stream electrofishing crew includes two people carrying probes, and netters. The current for electrofishing streams often comes from a gas-powered backpack unit (bottom photo).

majority of the electrofishing work. All personnel in the Fisheries Management Division have been thoroughly trained in electrofishing procedures and safety considerations. Electrofishing is obviously a very dangerous operation and could cause serious injury to the operators and to the fish if the work is not done properly. No one should use the procedure without proper, certified training.

Outside the Commission, electrofishing is used mostly by people associated with university research and private consultants who are working with fish populations. Electrofishing is not a legal method to catch fish unless you have a valid scientific collector's permit issued by the Commission.

Electrofishing can be used year-round. However, the majority of the Commission's electrofishing work is performed between March and October. Outside of those times, water levels and temperatures reduce the effectiveness of electrofishing on both the fish and the electrofishing operators.

Many waterways are sampled with electrofishing either annually or biennially. Most of this work is done to evaluate how a population is responding to a management change over time, such as a regulation change. The Coldwater and Warmwater Units, along with the area fisheries managers, perform most of the annual monitoring work.

On most occasions, when population estimates are conducted, a portion of the stream is sampled on consecutive days to complete a single sample. Sometimes biologists sample more than one area of a stream this way. Rarely, except under very specific circumstances, are streams sampled more than one time per year. Sampling a fishery with any type of gear is inherently disruptive to the sampled population. Excessive disruptions could lead to increased stress levels of individual fish, and ultimately could affect the population as a whole.

The Fisheries Management Division produces survey schedules each year. These schedules can be obtained by contacting the area fisheries management offices or the Fisheries Management Division

(814-359-5110). These schedules are tentative because of weather and water flow conditions. It is best to contact the appropriate area fisheries manager for his current survey plans. The list of area fisheries managers with addresses and phone numbers appears in the sidebar.


Probably the most difficult aspect of electrofishing is a growing public perception that electrofishing kills most of the fish exposed. This is untrue. Some streams have been exposed to electrofishing in the same locations annually for 15 years. If electrofishing mortality were excessive, these fisheries would not support the outstanding populations that are continually present.

If done improperly, electrofishing can cause severe injury and even mortality. Then again, so can fishing, if done improperly. When using electrofishing, probably fewer than five percent of the fish captured will die, and some of this mortality is from the handling of the fish after they are captured. Our fisheries managers and the staff are very concerned and take appropriate measures when the well-being of the fish is threatened. It would not be in our best interests to cause excessive mortality to the same fish we are trying to manage.

After a survey

Fisheries biologists and technicians collect, tally and review the data. Occasionally, fisheries biologist aides under the direction of the biologist or technician will participate in the data analysis process.

On a technical level, the fisheries biologist and fisheries technician review the data. Following the completion of a survey, the information is entered into a computerized database. From there the data is compiled into tabular form, management narratives (reports) are written, and management plans are developed based on the data and narratives.

All regulations that are part of Fisheries Management plans have been developed with data collected by some sort of electrofishing sampling. Our current resource-based stocking categories were designed in part on trout population abundance classifications, which were developed using electrofishing data. It would be most difficult to develop sound management plans without the use of data collected by electrofishing techniques. 

Robert Weber is the Commission Coldwater Unit Technician in the Division of Fisheries Management.



A large trout in this stream sampling tried to eat a smaller trout (left). When the eaten fish was extracted, both fish were weighed and measured (above). Who says big trout don't go for big bait?

More Unusual Electrofishing Discoveries

- One early spring, while electrofishing on a major river, we captured nine muskellunge in one night, and all were over 30 inches long. We saw but could not capture another seven or so muskies of similar size. In my six previous years with the Commission, I have seen only about six muskies while electrofishing.
- In southeast PA near Philadelphia we were electrofishing a previously unsurveyed stream and found thousands of small blue crabs, all less than two inches wide.
- We occasionally find wild "tiger trout," a naturally occurring hybrid between brook trout and brown trout.
- We captured two very large brown trout that were using a discarded shopping cart for overhead cover.
- We recently found an abundance of brown trout in the formerly degraded Lackawanna River, Lackawanna County.
- We captured an 11-inch wild brook trout in a headwater stream about two feet across.

Commission Fisheries Management Areas

- Area 1.** Area Fisheries Manager Craig Billingsley, P.O. Box 127, Linesville, PA 16424-0127; phone: 814-683-4451.
- Area 2.** Area Fisheries Manager Ronald D. Lee, P.O. Box 458, Tionesta, PA 16353-0458; phone: 814-755-3890.
- Area 3.** Area Fisheries Manager Bruce A. Hollender, 450 Robinson Lane, Bellefonte, PA 16823-9620; phone: 814-359-5118.
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Choosing the Right Depthfinder for PA Waters *by Bob Stearns*

Even if you're not doing it for the first time, choosing the best depthfinder for your needs is certainly one of the most bewildering aspects of boating and fishing. Part of this perplexity may come about from not being sure about what you want it to do. The rest likely comes from the confusing plethora of models and types available.

But you must start somewhere. And perhaps one of the major factors to be considered is how much you have to spend. Nowadays, though, competition in the marine electronics marketplace is fierce, so you probably won't have to bust your budget to get what you want. As an example, for less than \$900 you can buy a combo unit that provides both extensive depthfinding and electronic navigation (GPS or Loran C) capabilities. Some even have chart-plotting capability for just a little more. And there are also the more basic models for around \$100 or less. So do your homework carefully before you rush out to buy.

The size of your boat must also be considered in the decision-making process. If you own a small boat, portables (complete with battery and suction-cup transducer) are available. Many big-boat owners (that is, boats over 30 feet) go for the color CRT depthfinders, but in terms of pure numbers the black-and-white LCD display is king and has been so for more than 10 years. Lower cost, compact size, and very flexible capabilities are the reasons LCDs now dominate all types of depthsounders by over 85 percent.

Paper chart recorders have now become a very expensive specialty item primarily for commercial applications, and you will rarely see them offered for recreational fishing use. Flashers, once popular for their small size and low power requirements, have lost a huge amount of market share to LCD depthfinders. Besides, many LCD depthfinders even have a user-selectable "flasher" style mode for those who like that type of display. But even the most basic LCD will yield more information than a top-of-the-line flasher.

As for color CRT vs. LCD, price is one of the main differences. Even the smallest color units (6-inch screen) start at around \$600. They're bulky and they draw a lot of power, just like your TV at home. And unless you have at least a canvas top to shade the screen from direct sunlight, you won't be able to read them. Yes, their larger screens and multiple colors certainly do make their displays attractive and the information depicted is a little easier to interpret. They also have all of the features offered by the best LCDs. Hence, their popularity on large boats.

The vast majority of us small-boat anglers will opt for the LCD because it is so easily readable in bright sunlight and has minimal battery drain. But how does it stack up when compared to CRT and paper chart depthfinders?

Resolution is the yardstick of comparison among LCD, CRT and paper chart recorders. LCD and CRT depthfinders display their information in small dots (pixels), like the photo on the front page of your local newspaper. Paper chart recorders draw more or less continuous lines, almost an infinite number of pixels.

Pixels

Why are pixels so important? The number of vertical pixels on the screen is what really counts. For example, if the display on your depthfinder is 100 pixels high, and you're looking at objects near the bottom in 50 feet of water, each pixel represents six inches of height. If you get an echo from a fish that's only 3 inches high (never mind its length for the moment), it's going to appear on the screen as 6 inches (one pixel) high. If you have a school of these small fish that are less than 12 inches apart, you have no idea whether you're looking at a single big fish or a school of baitfish. And, in this example, if this single big fish or school of small baitfish happens to be less than six inches off the bottom, the echo will simply appear as part of the bottom. In this case, you could say the best resolution in 50 feet of water is six inches.

Now, let's increase the number of vertical pixels on your screen to 200. In 50 feet of water, your resolution is now four inches. If the depthfinder also has a zoom mode that allows you



to select part of that picture and double the on-screen image size, your resolution in this case is now two inches. With 4X zoom, it becomes one inch—almost as good as a paper chart recorder (the good ones are the equivalent of 1,000 or more vertical pixels).

The better LCD depthfinders on the market have both a large screen and split-screen capability, which allows the user to see the entire water column from surface to bottom on the right half, and the zoomed portion on the left half. This sort of display is invaluable to the angler fishing in 50 or more feet of water.

But suppose your fish-finding needs never go that deep? There are plenty of less expensive LCD units with 100 or more vertical pixels that do an excellent job for those depths. Obviously, if only depth is your main consideration, any LCD will do, regardless of the number of vertical pixels. But if they drop below 100, its fish-seeing capability diminishes correspondingly and the display becomes very blocky in shape.

What about power? Obviously it takes a high wattage output to penetrate deep water and return a fish echo to the surface. Some of the deeper ranging LCD units that go past 1,000 feet have as much as a 3,000 watt peak-to-peak output, and probably the least you'll need for good resolution in shallow water is 500 watts.

If those numbers aren't readily available for the fishfinder you're considering, look at its maximum depth capability. If, for example, you want good, sharp, accurate resolution at 50 feet, you need something with at least a 100-foot maximum range and an acceptable vertical pixel count. The old paper chart recorders had a feature called "whiteline." It's still called that in some CRTs, but for most LCDs it's now labeled "grayline." What it does is help the user distinguish between objects that are part of the bottom and others that are actually suspended above the bottom; the difference is clearly visible. You won't find grayline on the cheapest LCDs, so if fish-spotting is important, be willing to go a few bucks more for the next model. The cost difference isn't great.

Water temp, speed, distance

Nowadays the better LCDs also offer other features, the most important of which to us anglers includes water temperature, speed and distance log. I find the log especially helpful; it's like a fairly accurate fuel gauge. I reset it to zero each time I fill the gas tank, and I know that my 17-footer has a range of 135 water miles on 27 usable gallons of fuel—as long as I stick to the speed that yields the best mpg. For practical purposes I use 110 miles as my max, never ranging so far from the dock on any given trip that I cannot make it back before 110 appears on the log. This gives me a 25-"mile" cushion for unexpected situations.

My numbers might be larger than yours if you have a small boat, say a 12- to 14-footer with only a 6-gallon gas tank. Still, the same idea applies.

Most depthfinders require an optional temp/speed attachment for this, but it's not expensive and well worth the little extra cost.

Fish ID

I cannot think of any feature that causes more confusion than fish ID. Almost all depthfinders have it because there seems to

be a general demand for it. Fish ID is nothing more than a computer-generated fish icon that supposedly represents real fish. All it actually does is show any object suspended above the bottom as a fish, whether it's a tree branch, floating weed, or whatever. And the size of the fish symbol often has nothing to do with the real size of the fish, even if it actually is a fish.

You'll catch a lot more fish if you learn to interpret the "raw" graphic images rather than depending on fish ID. It isn't hard. So if the depthfinder you're considering has fish ID, make sure you can also turn that feature off whenever you want.

I never was happy with the performance of the automatic mode in any of the LCDs I tried before the models of the last few years. But the better models today allow you to adjust the sensitivity range to suit your own needs, even in the automatic mode. That's a big plus when you're trying to sort out big fish



Most small-boat anglers opt for an LCD unit because it's easily readable in bright sunlight and has minimal battery drain.

from schools of very small baitfish. If the sensitivity is automatically set too high, even with really good resolution a school of small baitfish will often appear as a big blob. So will a school of bigger fish, but reducing the sensitivity setting until the individual fish begin to appear within the mass is a good way to find out what's down there.

Ease of use is another big factor. The better makes offer some sort of detailed on-screen menu system that covers most of the important features. This saves hauling the manual around with you, even though you ought to keep it aboard the boat in case you need it.

Transducer selection

Transducer selection is just as important as the depthfinder itself. You'll get the best "picture" via a through-hull or transom-mounted skimmer transducer. You'll be able to see the bottom clearly at any reasonable speed if the transducer is a good one and it's mounted correctly.

Finally, there's operating frequency. A good compromise for all but very deep water (extensive use in over 250 feet) seems to be around 190 to 200 kHz. However, higher frequencies may work in depths of 100 feet or less. Many of the better LCD and color CRT depthfinders offer dual frequency capability, plus a switchbox that allows you to choose between two separate transducers.

Whether you try for fish in Lake Erie or Raystown's depths, or if you seek fish in some of our shallower lakes, let these ideas help you make the most for your money.



GET READY FOR RAIN!

by Cliff Jacobson

*A rainsuit can keep you dry
in and out of your canoe.*

The showers begin intermittently, only a drop or two for a few minutes, then with a gentle rain that lasts an hour. The storm intensifies, ultimately erupting into a persistent downpour. You're warm and dry in your well-designed rainsuit. Not so in the bow, where the paddling cadence has slowed and conversation is reduced to occasional groans.

At first, you're amused that your partner's expensive raincoat leaks, while your discount store cheapie works fine. But as the weather worsens, you begin to chill and you become concerned about hypothermia. You'd better put ashore immediately and get your friend into some dry clothes.

If this episode sounds familiar, you're not alone. Few boaters can boast rainwear that works in an all-day rain. Surprisingly, cost and performance don't always go hand in hand. It's more a matter of good design and construction than special fabrics or showroom style.

Raincoats are for city-slickers

Conventional raincoats are for city-slickers, not for active outdoors people. Boaters should choose a two-piece rainsuit or cagoule, never a poncho that will leak through and blow aside in wind. Ponchos won't protect you against hypothermia if you capsize and have to swim, and they may catch on sub-surface rocks or logs and cause you to drown! Cagoules (sometimes called knee-length fishing shirts) are full-cut, calf-length, over-the-head parkas. They have large hoods, a waist-length zipper that closes to the nose, and a kangaroo pocket in front. You can pull your feet inside the garment and close the bottom with the drawstring at the hem. Cagoules are lighter, more comfortable, better ventilated and less expensive than techy two-piece rainsuits.

It's a bit of a feat to put on and take off a two-piece rainsuit in a canoe or boat, especially when short showers come and go. On the other hand, cagoules go on fast. The open skirt allows air to circulate, which makes for much comfort on a muggy day. When the rain momentarily stops, hike up the hem and allow your legs to breathe. Drop the skirt when the shower returns. An easy over-the-head pull removes the garment.

Cagoules, like ponchos, may be dangerous in a capsize, so whitewater canoeists and kayakers should avoid them. However, most other boaters will be hard-pressed to find more comfortable and versatile rainwear. You'll find cagoules at

camping and fishing shops and in some big chain discount stores. If you get a blank stare when you ask for “a cagoule,” tell the sales person it’s a calf-length fishing shirt. Thirty bucks will buy a good one.

Rainsuits: Safety dictates that you wear a two-piece rainsuit if you canoe or boat on fast-moving rivers. You can get a serviceable bare-bones suit for around \$60, or you can pay more than \$500 for exotic features you may never use.

You’ll save big money if you remember that most outdoor wear is sold to armchair adventurers who rarely deviate from woodchip trails in state parks. Catering to those who spend real time in the wilds is economic suicide. Better to make questionably waterproof garments that look good at the All-Star game than unfashionable models that keep out rain.

To evaluate the fit of a raincoat, put on all your cold-weather clothes, including your pile jacket and life jacket. Then try the tests below. Keep shopping if the garment fails a test or lacks many of the suggested features that follow!

Note: Technically you should never wear anything over a life jacket, but short, sporadic rains demand concessions. It’s a hassle to put on and take off your PFD every time you add or shed rain clothes. Better to size your rain parka large enough to fit over everything. The larger size promotes better ventilation, too, though you may have to live with sleeves that are too long and a neck closure that doesn’t seal. To seal a gaping neck on a jacket that is too large, sew a hook-and-loop security tab across the throat. This is standard practice on foul-weather yachting attire.

Bundle up, try these tests

1. Windmill your arms back and forth in a strong “canoe paddling” motion. Does the jacket bind anywhere, especially at the forearms, arm pits or below your chin? If so, keep shopping; this jacket is too small!
2. You should be able to zip the jacket fully, and move actively, while wearing all your cold-weather gear.
3. Water will dribble through elastic, snaps and button cuffs. You’ll want hook-and-loop closures if you’re serious about staying dry. Do the hook-and-loop tabs seal over both your bulkiest and thinnest



Stowaway raingear lets you paddle and play unhindered with extra clothing.

garments? If not, can the tabs be lengthened, shortened or moved?

Important features

• **Weather flap.** The best parkas have a double weather flap over the zipper. Lesser-built garments have a single weather flap that is controlled with spaced snaps. Blowing rain can flow between the snaps, through the zipper. One wide weather flap is adequate if there’s a full-length hook-and-loop strip to hold it shut. Avoid any closure that has “dribble points” where water can leak through.

• **Pockets.** Two covered pockets at the hem are all you need. So why pay for extra pockets you won’t use?

• **Lining.** A lining absorbs and wicks perspiration away from your skin. You feel drier, especially on hot, muggy days when you’re working hard.

A liner also increases the durability and warmth of a garment and makes it easier to slip on over clothes. But lined parkas are heavier, bulkier and more expensive than unlined ones. One solution is to wear a porous nylon windbreaker inside an un-

lined raincoat. Wear the nylon shell alone on windy days and save your raincoat for rain. It will develop fewer holes and tears, and last much longer, if you wear it only when necessary.

Specialty liners, like Dryline™, which was developed by Gore & Associates, may be worth the price if you choose breathable/waterproof rainwear. The napped side of Dryline, closest to the user, is made from non-absorbent polyester yarn that holds a large amount of water. Vapor pressure pushes skin moisture through the non-absorbent layer to the absorbent side of the material, where it quickly dissipates through the Gore-Tex™ outer shell.

• **Hem cord.** A hem cord allows you to snug the garment around your waist, thereby sealing off the entry of water in a capsized. Add secure wrist closures and a tight-fitting throat strap, and the garment provides real protection from hypothermia in the event you capsize. Some rain jackets have a waist cord and a hem cord. You really don’t need both.

• **Inner cuffs.** Lycra or neoprene inner cuffs prevent rain from running up your sleeves. But double cuffs are hot and bulky and they increase the price of a rain jacket. Serious sailors demand double cuffs; casual paddlers and hot-weather boaters may be better off without them.

• **Hoods.** A hood should be an integral part of the jacket, not a tacked-on afterthought. Detachable hoods, and those that roll and zip into collars, often present big gaps (especially at the throat) to the weather. The jacket zipper should close nearly to the nose so blowing rain can’t slither down your neck. The best hoods have two drawstrings—one of which allows the hood to turn with your head—an important safety feature. Frankly, even the best hood designs obscure some visibility—the reason why active people don’t like them. You’ll stay dry in any weather if you follow the lead of lobster fishermen and wear a big-brimmed souwester rainhat under a hoodless rain coat.

• **Under-arm zippers.** Some high-tech, waterproof/breathable rain jackets have zippers under the arms that can be opened for ventilation. Active hikers and bikers like “pit zips” because staying cool is often more important than staying dry.

GET READY FOR RAIN!

Manufacturers like them because they increase the cost of the garment. Despite advertising claims, I have never seen a sleeve zipper that didn't leak in prolonged heavy rain. Pit zippers are a costly feature you don't need.

Rain pants

Some rain pants have a bib and suspenders; others have a simple waist cord. Bibs are more comfortable and waterproof, but pants with waist cords are much more practical. Buy bibbed pants only if you're willing to strip off—and put on again—your raincoat and PFD every time a passing shower requires you to put on rain pants.

major deal. A few hikes through mud, logging slash and recent burns will do more to teach you about the stupidity of ankle zippers than anything I say here.

• **Seat patch.** Lightweight rain pants are built of fabrics that withstand around 100psi of water pressure—not enough for those who sit for hours on the wet seat of a boat. Many heavy duty sailing suits have double-thick material sewn into the seat, and this good idea can be applied to lightweight rain gear. Just be sure to glue and tape the patch you sew. Silver duct tape applied over dry seam sealant never lets go.

• **Colors.** Navy-blue and black attracts bugs. Other colors have no effect. Would you believe that dark blue is the most popular color for rain and wind gear?

In summary, rain gear should be large enough so it won't bind when you layer

it alternately rains and snows. Conventional foul-weather gear works about as well as Gore-Tex in chilling rain and it costs much less.

Early Gore-Tex fabrics leaked unpredictably. Part of the problem was the Gore-Tex substrate itself, which failed when it became soiled. There was also a lot of bad tailoring—that is, skimpy weather flaps, unprotected pockets, incomplete seam-sealing, etc. Now, improvements in substrate chemistry, machine-sealing of seams, and thoughtful tailoring have produced a reliable class of garments dubbed "Rainwear Without Compromise" (look for the tag), which works as promised. Nonetheless, a lot of experienced outdoors people were burned by the bad performance of 1970s-vintage Gore-Tex, and many continue to remain gun shy of it.

Until recently, I was one of the doubters. But my expensive Gore-Tex parka hasn't leaked a drop in four years. It has earned my trust.

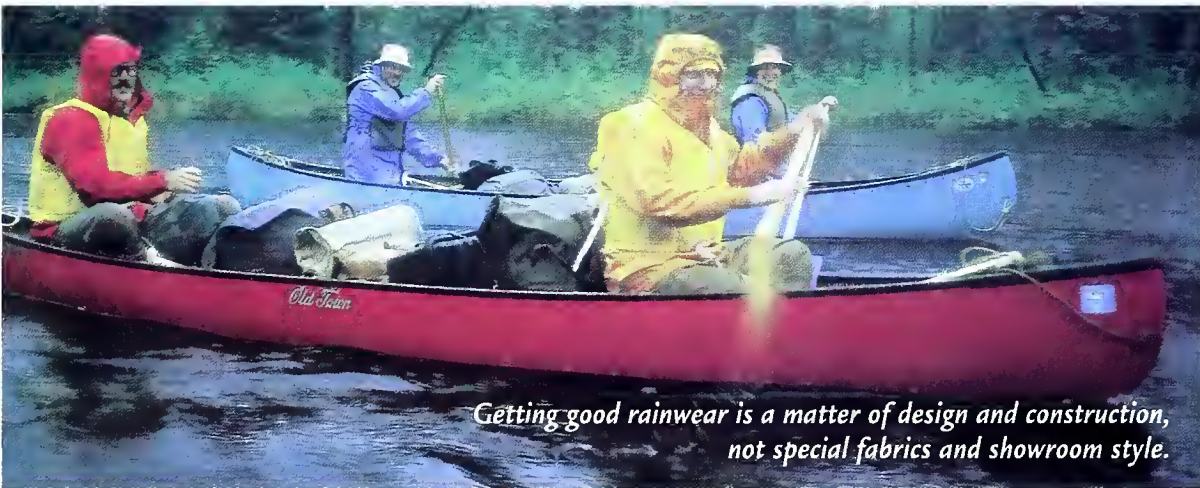
Shopping for rainwear

You'll save big money if you choose the same rain gear that professional foresters and construction workers wear. The new commercial fabrics are strong and lightweight. Most have factory-sealed seams and double weather flaps. A good suit costs about \$60 and works almost as well as high-priced stuff. Just about every big city has a retail outlet for commercial rain gear. If you can't find a source, try Viking Industrial in St. Paul, MN. Phone: 1-800-328-6505. Viking will ship anything, anywhere. Be sure to ask about their wonderful Tingley rubber overshoes, which won't slip on wet rocks or boat decks.

The best buys are in outdoor stores, not in yuppie catalogs and camping shops. The downside is that green and camo may be the only available colors.

What you wear under your rain gear is important! Begin with a wicking layer of polypropylene, polyester or wool long underwear next to your skin. Then put on a wool or polyester fleece shirt. These inner garments absorb chilling perspiration.

Again, let me stress that no waterproof garment—regardless of price—will last long if you wear it every day. Save your rain coat for rain and wear a porous wind breaker for wind. When you're afloat and it's not raining, store your rain gear inside a nylon sack. Stuffing unprotected rain clothes into a pack or box may damage the thin waterproof coatings.



Getting good rainwear is a matter of design and construction, not special fabrics and showroom style.

Bigger is better! Get rain pants at least one full size larger than you think you need. The waist should open wide enough to accommodate bulky wool trousers and a thigh-length pile jacket. Baggy construction won't attract smiles, but it will allow air to circulate and perspiration to dissipate. I replace the usual elastic waist band with parachute cord or nylon webbing and a Fastex™ buckle. This arrangement is more secure and it won't stretch when it gets wet or old.

• **Ankle closures.** Primitive people learned long ago that water doesn't flow uphill, so I can't tell you why most rain pants have zipper or snap closures at the ankles. Ankle closures of any kind restrict ventilation and keep in heat and perspiration.

Pant legs should be clown-like wide and hang stove-pipe straight. Buy your rain pants on the long side and then trim them flush with your ankle bone. A 3/4-inch-wide strip of nylon twill sewn to the inside hem of each pant leg adds durability.

Those with short legs should note that zippered rain pants can't be shortened without relocating the zipper, which is a

warm clothes beneath. Factory-taped seams and zipper overflaps are essential. The throat area must snug securely and there should be a drawstring at the hem or waist. Excess (more than two) pockets drive up costs without adding much utility. Techy underarm zippers may leak. Rain pants should have double seats and the legs should be cut stove-pipe straight, without confining zippers or snaps at the ankles.

Fabrics

Fabric price doesn't seriously affect the cost of a rain garment. The biggest expense is tailoring pockets, zippers, overflaps, double drawstrings, etc. The material used in premium discount store and construction grade rainwear is adequate for severe applications, though the tailoring may not be. You can repair most inadequacies if you have a sewing machine.

Waterproof/breathable fabrics. Gore-Tex was the first of the "waterproof/breathable laminates" and many people still think it's the best. Gore-Tex is at its best on sultry summer days and in winter, especially in transitional weather where

SHAKEDOWN CRUISE

by Sam Everett

In the fall, many boat dealers offer substantial savings on boats. Like car dealers, they want to make room for the new models. If you've recently bought a boat, motor and trailer, brand new or used, you should take steps now to protect your investment.

New or used, your boat is still "new" to you, so during the maiden voyage and the first few trips, make sure everything works properly and that you know how to operate all your "new" equipment. Here are other ways to get the most from your new rig.

- When you trailer a new rig, stop after the first two or three miles and check the tie-downs, winch, lights, tires and hubs. Pull over again about five miles later and check everything once more. Keep doing this—pulling over every few miles—until you're sure the new rig and your tie-down routine are safe and secure.

- Get to know your rig on the road. This gives you the edge if something goes wrong. You can often feel and hear some problems immediately, thus preventing a minor mishap from becoming more serious and costly.

- Learn the on-the-road sounds of the new rig. Distinguish between "okay" sounds and warnings. Even if you've trailered a boat before, a new boat and trailer can ride and "feel" very differently from your old rig. Listen to the suspension. Pay attention to how the new rig takes bumps, dips, potholes and other road obstacles—how those bumps "feel" and sound. Always keep one ear on the trailer.

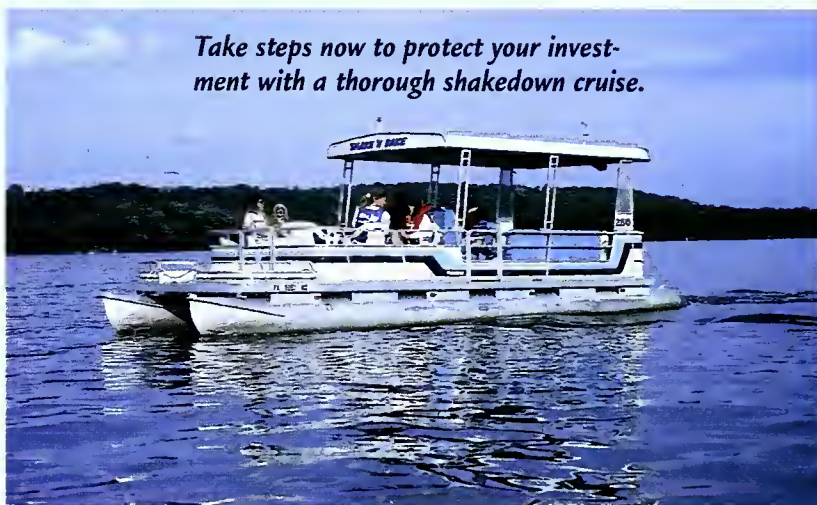
- Shakedown cruises work best on uncrowded waterways. Crowded places mean you have to maintain your lookout most diligently. You always want to maintain proper lookout when you pilot a boat. But on the initial voyages, uncrowded conditions let you pay closer attention to learning about your new boat. You can't

accomplish this goal if you're constantly dodging water skiers, fishermen, trollers, pontoon boats, cruisers, personal watercraft and sailboats. Luckily, most waterways are uncrowded this time of year.

- If your engine is new, follow the manufacturer's recommendations carefully concerning the first 10 or so hours of operation—the break-in period. Pay attention to the linkage, throttle controls and steering so that if they need adjustment after a few hours, you can see that it's done.

- Today's outboards feature special kinds

Take steps now to protect your investment with a thorough shakedown cruise.



of oil injection systems. If you bought this kind of outboard, note the difference in the oil level before and after each trip, and before and after the first few trips. If the oil level decreases ever so slightly, the system is probably working correctly.

- Don't let a new motor's smoothness fool you into fudging on the manufacturer's break-in instructions. You pave the way for smooth operation in years to come when you break in an engine properly. Furthermore, neglecting an aspect of breaking in the engine can void the outboard's warranty and cause the engine to fail prematurely.

- Be sure you have on board the owner's manuals and instruction books for all your equipment and electronic gear. Before you decide that something isn't working properly, check the item's performance with

the operating instructions. You save time and money by making many minor adjustments yourself instead of dragging the rig back to the dealer for a small change that takes only a few seconds—which you could have adjusted yourself.

- Read all warranty information carefully, and make sure you understand each new item's warranty. Remember to mail warranty registration cards promptly to manufacturers. In most cases, you cannot be denied warranty protection simply because you don't register your purchase. However, registering your purchase lets the company send you recall information and update notices.

- If you bought a used item, or if you no longer have an item's owner's manual, contact the manufacturer. In most cases, the manufacturer will send you the correct owner's manual for a small fee.

- Be sure to test other new equipment, such as navigation lights, bilge pump, ventilation system, livewell and electric motor.

- Learn how your new rig handles on the water with practice and experience. Right from the start, develop a "feel" for the throttle and other controls, and how the boat responds.

- Practice maneuvering your boat so that getting under way and docking become second nature—like driving your tow vehicle. Begin to develop this "feel" during the first outing by practicing in open water on that uncrowded waterway. Then you'll be better prepared to take on awkward launching, retrieving and docking in winds and

strong currents, and in more crowded conditions next season.

- Conduct a first voyage with a new boat with a knowledgeable partner who can help you with all the shakedown details—trailer, maintenance, boat operation, equipment use and docking.

- When you buy a new boat or outboard (but not a boat trailer) and register it properly, by law the manufacturer has to notify you of any safety recalls for the product. Nevertheless, call the US Coast Guard Customer Infoline to learn of any recalls on your boat or outboard. The toll-free number is 1-800-368-5647.

- Ensure that your insurance coverage is adequate for your new rig, and remember to inform your carrier of equipment changes.



Lehigh Valley Trout Streams

by Vic Attardo

Dave Arnold, the Pennsylvania Fish and Boat Commission's Area 5 Fisheries Manager whose territory includes the Lehigh Valley, says, "Given all the urbanization throughout the region, one would not expect to find so many fine, wild brown trout populations. But the Lehigh Valley, for its limited area, offers Pennsylvania anglers a vast array of fishing experiences with both wild and stocked trout waters right in their backyard."

In the southeast corner of the state, whenever two fly fishers get together, one is bound to mention the Little Lehigh while the other is likely to bring up the Bushkill. Indeed, both the "Little L" and "The Bushy," located within 30 minutes of each other, are two of the state's best streams.

If popularity weren't enough to deem them important, both waters also have great historical significance. James Leisenring (1878-1951), noted for the Leisenring-lift style of nymph fishing, fished the Little Lehigh for many years. A plaque embedded in a streamside stone marks his contribution to the sport.

Across the Valley, the first split bamboo rod made in America was crafted by Samuel Phillippe in his Easton gunsmith shop about 1846. I've never found any reference that Phillippe fished the Bushkill, but it's hard to believe that he neglected the stream so near his front door.

After chatting about the Valley's big two, a discussion among

anglers should turn to some of the region's other streams. If they're smart, they fished Monocacy Creek, which has returned from a near total fish kill in 1985 to a wonderful wild trout fishery. If truly experienced, they've cast over Saucon Creek, which I was fishing when it still ran lime-green from mine water and which now supports a Class A designation. If they're Valley regulars, they've walked

along sections of Jordan Creek, Lehigh County's most heavily stocked stream; and if they're really familiar with local roads, they've also tried the placid waters of Hokenauqua Creek, where the manicured banks are graced with willow trees.

These are just some of the Lehigh Valley's other trout streams.

In character, the Lehigh Valley's trout waters are limestone-influenced, their beds a mixture of gravel, rock and weeds. Except after hard rains, their waters flow bright and clear. And even though chemical pollution is not a major problem, sedimentation and the

lowering of the water table caused by continuing development are having a detrimental effect.

Is the Lehigh Valley a dream destination for the trout angler? Truthfully, no, not in my book. There are other areas of the state where the trout are more plentiful and the scenery more serene. But will the angler catch fish here? Of course, and sometimes by the carloads. In the spring, mid-season hatches rival many upstate locations, and during a moderate winter the southeast



In the spring, mid-season hatches rival those in many upstate locations, and during a moderate winter, the Lehigh Valley and the southeast can be the best place to search for snowshoe trout.



Little Lehigh Creek, Lehigh County

can be the best place to search for snowshoe trout.

What's more, these limestone waters produce some remarkably beautiful fish. The wild browns I hook on portions of the Little Lehigh, Bushkill and Saucon creeks are as brightly spotted as any I've taken in the Commonwealth. They have large bodies and small heads—a sign of growing, healthy fish. And when hooked, they fight like blizzards.

Here, then, is a modest treatment of what you can expect in the region.

The Bushkill

In downtown Easton, the stream is bordered by industrial decay. Old, flat-roofed factories cast gray shadows on the water. Along the scarred banks, ruined foundations resemble an archeological dig. But above the downtown area is a corridor of city and county parks. Greenery overcomes grime in these urban woods. The sycamores are particularly beautiful.

The downside and upside of fishing the Bushkill is Bushkill Drive, a two-lane speedway that runs too close to the eastern bank. Bushkill Drive provides easy access along most of the creek, but it detracts from the serenity.

At its base, the Bushkill flows directly into the Delaware River, and before you squirm out of the factory district you're into some nice special regulation water. From the 13th Street bridge upstream to a large dam at the Binney and Smith



A fly fisherman on Little Lehigh Creek shows a nice trout. The Lehigh Valley offers some fine trout fishing opportunities.

plant (the Crayola Crayon people), there's over a mile of catch-and-release fishing. Angling must be done with artificial lures or flies, but the section is open year-round. In this area, near the last parking area for the special regulation waters, is a huge, deep pool that tests a fly fisherman's ability to dead-drift a nymph.

Above the pool begins the gently descending steps for which the Bushkill is famous.

This is classic riffle-run-pool fishing and it is some of the best on the creek.

In the special regulation zone, the stream takes its time flowing downstream and trout have plenty of side pockets for shelter. Some of the east bank is manicured with factory lawns, but the proprietors are gracious and provide parking and access. Even though this area is heavily fished, it still manages to produce good angling. The Forks of the Delaware chapter of Trout Unlimited gets the credit for working with these businesses.

I've worked the upper end of the special regulation waters in the middle of caddis hatches while spring warblers bolted from the branches to take the rising insects. Using soft-hackle emergers I've been able to fool some wonderful fish.

The catch-and-release area starts at a tall dam beneath which flows some of the fastest water in the stream. As the riffles calm, trout begin to line up under the bridge, which is the first upstream parking site for the regulated zone. Often in the early season, you'll not only get holdovers and wild trout, but some of the freshly stocked fish from above the dam.

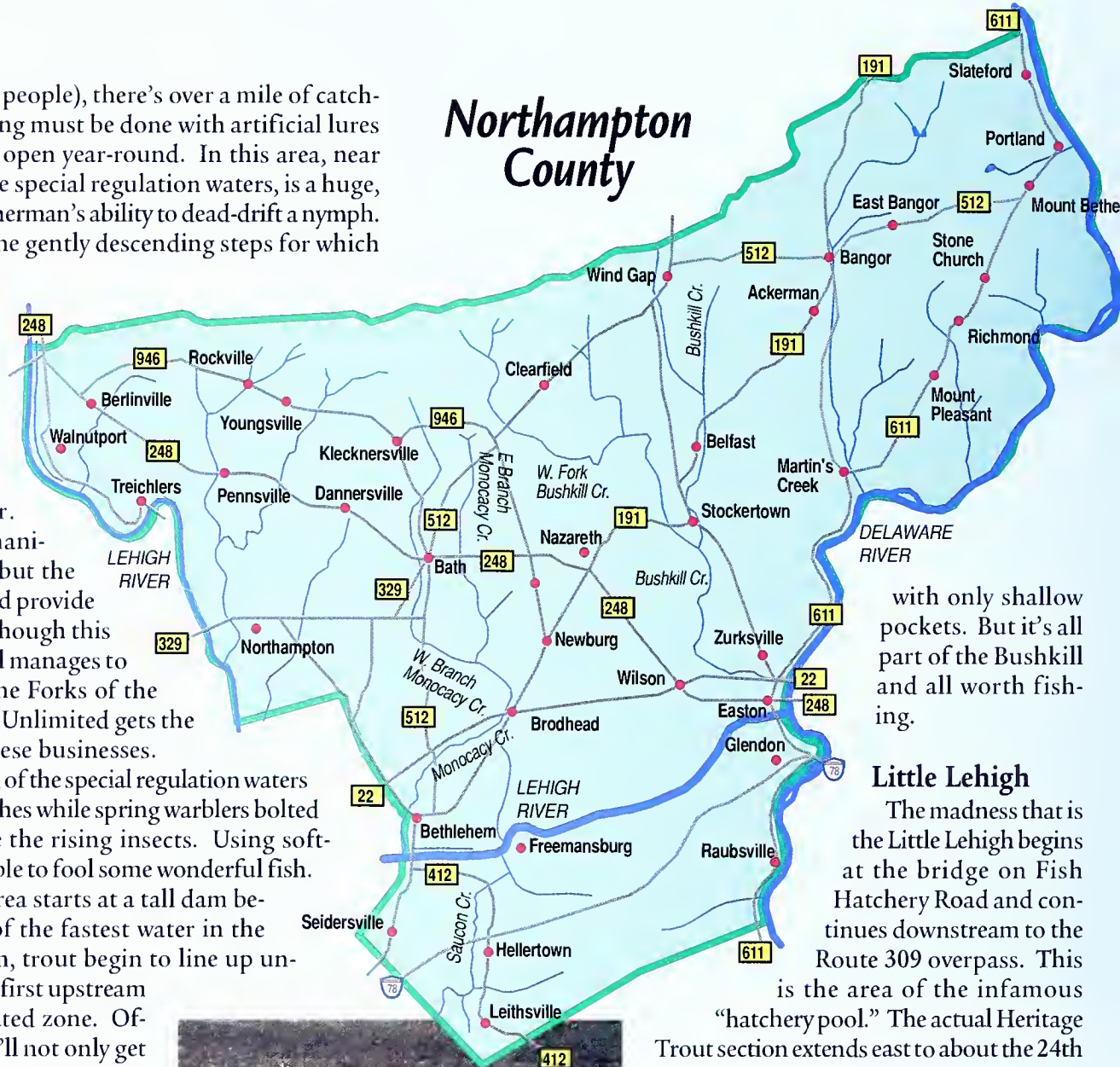
The biggest mistake many fly anglers make on the Bushkill is to limit their fishing to the special regulation zone. Hundreds of bait and hardware anglers know how good the waters above the Binney and Smith dam can be, but only a small number of fly fishers do.

Above the dam to Northwood Avenue you'll find another pool with flat, seemingly featureless water. Soon you'll come to Stocker Mill with some very nice riffle water above. Farther upstream the land opens up to rural America. The little cross-roads town of Tatamy is an interesting stopover. Cars traversing the bridge slow to watch the graceful unfurling of fly lines.

At Tatamy, the Bushkill has a brief identify crisis. Suddenly the stream thinks it's a steep mountain brook. The waters are squeezed between large rocks and the gradient is much steeper. This is Pennsylvania pocket water of the best sort and through here I've caught some small beauties with attractor dry flies.

Unfortunately, with the widening stream above the Tatamy bridge, there is less of a gradient, so the riffles become flat

Northampton County



with only shallow pockets. But it's all part of the Bushkill and all worth fishing.

Little Lehigh

The madness that is the Little Lehigh begins at the bridge on Fish Hatchery Road and continues downstream to the Route 309 overpass. This is the area of the infamous

"hatchery pool." The actual Heritage Trout section extends east to about the 24th Street bridge.

I don't know what stream in real nature this section relates to, but it holds an unnatural amount of fish. In places it seems the trout bunk one on top of the other like kids at camp. When you need a fishing fix, the hatchery pool is where you go. Few people get—or should get—skunked in front of the wall.

Arnold notes that this section of the Little L is actually classified as Class B water for a rather unique reason.

"We've all but given up trying to get a reading on this water because it contains such a mixture of wild fish and hatchery escapees," Arnold said. "It is one of those quirks in the system."

While recently paroled hatchery fish will take any fly, even one resembling moldy bread, the wild fish and long-time holdovers have seen every feather since Dame what's-her-name first wrote about fishing. So wisened, Little L's trout can be a real test of a hatch-matching pattern.

Below the hatchery, the stream opens to a wide flat where rising trout study your flies as if they were warrants from the IRS. Midge fishing is legendary in this area.

Along both sides of the stream, the banks



An angler brings in a Lehigh Valley stocked golden rainbow trout.

are groomed and manicured. Lovely huge trees provide the needed shade, and stream bank improvements provide cover for the fish. No wading is permitted throughout this area.

I'll say flatly, I am not a fan of this section of the Little Lehigh. Even in a blinding snowstorm it's crowded. I much prefer the Delayed-Harvest, Fly-Fishing-Only section in the vicinity of the Wild Cherry Lane bridge east of Macungie.

As of this writing, this section was classified as Class C water (from a 1979 survey). The 1997 re-assessment of this past summer shows improved trout populations. However, no changes have yet been approved. The section may also be re-designated as Artificial Lures Only.

There's good access for this section along a ritzy development. A foot bridge and park path eventually take you by some nice pocket water. Unfortunately, before you reach the pocket water one side of the stream is mowed to the edge—when will they ever learn—but at least the opposite bank is steep and wood-covered.

As bespeaking many cultivated shorelines, the stream here is slow and full of sediment. The fish I've taken came from the hilly bank, particularly under the fallen trees that stretch into the water. I've hit tricos in this area, but the fish can be maddeningly difficult when the water is clear and they're sipping minutiae mid-stream. In non-hatch times I prefer to let the trout ambush my streamers coasting along their lairs.

In addition to this Fly-Fishing-Only section, another nice piece of water is a 2.1-mile portion of the Little Lehigh that runs from the confluence of Spring Creek upstream to T-476. This section was recently classified as Class A water. From T-476 (Smith Lane) upstream to the SR 1039 bridge is 3.1 miles of stocked water. From the confluence of Spring Creek downstream to the bridge on T-508 there is 4.7 miles of water annually stocked with 6,800 brown and rainbow trout. Other sections of the Little Lehigh inside Allentown are also stocked with a massive amount of trout.

The Monocacy

Initially the two-mile trophy trout section of Monocacy Creek, which begins above Bethlehem's Center Street bridge, near Rt. 22, and ends at Illicks Mill Dam, was managed as a catchable trout water under statewide size and creel limits. In 1983, after finding a wild brown trout population, the Commission stopped stocking this section. Two years later, a truck overturned, spilling detergent into the stream and nearly wiping out the entire fish population.

According to a report by Commission Coldwater Unit Leader Tom Greene, the inclusion of this section in the Trophy Trout program in 1988 may have been instrumental in enhancing the depleted brown trout population. In any case, since the regulations were applied, the wild trout population has skyrocketed. Unfortunately, the number of large trout is low, possibly a result of inadequate habitat and its location near an urban center.

The Monocacy is a limestoner with heavy siltation and a low gradient. Through the town of Bath, the stream is less than 20 feet wide and is annually stocked with 1,800 brown and rainbow trout. Another three-mile section through downtown Bethlehem to the confluence with the Lehigh River is stocked

with 3,200 brook and rainbow trout. A 2.4-mile section roughly from T-436 to the SR002 bridge at SR091 outside the city is also stocked with 2,800 brook, brown and rainbow trout.

But the trophy trout section has, according to Arnold, an excellent wild brown trout population.

To reach this section from the south side of the Lehigh Valley, take Rt. 378 to the Eighth Avenue North exit. Turn left onto Schoenersville Road. You can take either an immediate right onto Illick's Mill Road to reach the lower trophy trout area or continue north to Jacksonville Road and then turn right.



Wet flies and nymphs are one way to challenge Lehigh Valley streams.

Saucon Creek

The New Jersey Zinc Company no longer pumps water into the Saucon and therein lies the answer for its return. The upper 2.5-mile section from Bingen to the High Street bridge is stocked with 3,800 rainbow and some trophy golden trout. But farther downstream over two miles of the Saucon is now classified as Class A water. Even though there is limited stream cover in portions of this section, a large, cold spring keeps the water temperature down.

To reach this area, turn off Route 378 and travel east behind the Lehigh University Athletic Fields. Access is very poor along the lower Saucon, but you can follow Reading Road from the village of Bingen (look for a giant Victorian house on the corner—my former home) and then follow Route 412 (Main Street) to the Hellertown Historical Park for access to the stream's stocked sections. The Class A section begins above the High Street bridge and extends downstream some two miles to the SR 0412 bridge.

Other Lehigh Valley streams

Jordan Creek is an important stream in the state's catchable trout stocking program. Unfortunately, as Arnold notes, its holdover potential is low and it is heavily silted. Nearly nine miles of the stream from SR4007 the SR 0309 bridge is stocked with 12,600 brown and rainbow trout, two spring plants and one fall plant.

Cedar Creek, which flows through the city of Allentown, offers a family park setting. Below Lake Muhlenburg to the confluence with the Little Lehigh the stream is stocked with two spring plantings of 1,500 brown and rainbow trout. Above Lake Muhlenburg, Cedar Creek is designated as Class A water, according to Arnold.

A 5.3-mile section of Swabia Creek from the Alburdis Rod and Gun Club to the Little Lehigh is stocked with two spring plantings of 4,700 brown, rainbow and brook trout.

In Whitehall Township, 1/4-mile west of Route 145 a section of Coplay Creek, 50 feet up and downstream of a fishing pier, has been set aside for persons with disabilities.

Switzer Creek, southeast of Route 100 at Lowhill, is becoming more and more popular with early season anglers because it receives a pre- and in-season stocking. So is Ontelaunee Creek along Route 143 south of New Tripoli, also with a pre- and in-season stocking.

Hokendauqua Creek is stocked with 2,850 each of brown and rainbow trout plus trophy golden trout. It also receives two in-season stockings.



How Fares Our State Fish?

by Robert L. Petri

On March 9, 1970, the Pennsylvania General Assembly adopted a resolution designating the brook trout as the Commonwealth's official state fish. It was a wise and fitting choice. No fish better represents what is special about the free-flowing waters of our beautiful state than this sleek and colorful gem that is our only native trout.

The brook trout is a Pennsylvania original, and it holds a special place in the heart of Pennsylvania anglers. If you grew up in or near the mountains of our fair state, it may have been that magical first fish that kicked off a lifelong love affair with our sport.

Our brook trout are as fragile as they are beautiful. They have very exacting water quality and habitat requirements. Not just any old place will do. To prosper, the brook trout requires clean, cold water that is free of excess sedimentation. When you find them in the wild state, you know that you have not only found one of the most beautiful fish to call Pennsylvania home, you have also found a piece

of our natural heritage that remains for the most part as it was a century ago.

From colonial times, our activities and the well-being of the brook trout have been at odds. When we cut the great forests of white pine and hardwood that stretched across the state in the days of the first settlers, we hurt the brook trout by removing the shade that kept the waters cool, and by introducing sediment and silt into its environment. When we delved deeply into the earth to take the coal that powered the engine of development, we dealt another blow to the brook trout as the acid runoff from the mines poisoned its home. The brook trout did not complain at these turns of events. It simply disappeared from some of its original Pennsylvania range.

These days we are wiser in our use of natural resources and we have learned to temper our effects on our environment while still allowing ourselves to use its bounty to build our homes and to heat our community halls. And while the good old days may be gone forever, all this has been good news for our state fish, the

brook trout. Let's take a close look at how our state fish is faring today.

Tom Greene is the Commission Coldwater Unit Leader. In his work, monitoring the trout fisheries of our state, he is in a good position to gauge the health of our native trout. And according to Greene, the brook trout here in Pennsylvania is doing pretty well, all things considered. Even though he notes that large amounts of good scientific data on trout populations have only been available for the past few decades, the information that is available indicates that brook trout populations in the traditional strongholds of the species, particularly in our north-central mountain counties, compares favorably overall with some of the information available from studies done over a half-century ago.

From 1938-1941, a comprehensive study of brook trout populations was conducted in the tributaries of Kettle Creek in Potter and Clinton counties. One of the streams that was surveyed extensively during this study was the Hammersley Fork and its headwater branches deep in the mountains of Potter County. In July and August of 1939, a stream census of Hammersley Fork yielded 942 wild brook trout longer than six inches. This contrasts very little from a mid-1980s Pennsylvania Fish Commission survey in the same watershed that produced 950 wild brookies over seven inches in length. Two other survey streams in the Kettle Creek watershed, Beaverdam Run and Trout Run, also produced very similar numbers of wild brookies when the surveys of the late 1930s were compared with the most recent Fish and Boat Commission data from the late 1980s and early 1990s. Greene believes that these comparisons indicate that the wild Pennsylvania brook trout is holding its own in our northcentral mountains. In some cases it's even doing slightly better than it was in the years immediately preceding World War II, about the time that the first usable data became available to fisheries managers.

Even though it is true that in the "good old days" when brook trout were the dominant species in our larger mountain freestone streams like Kettle Creek and the upper reaches of Big Pine Creek, they may have grown to sizes rivaling those of their introduced cousin, the brown trout. The size range of today's Pennsylvania brook trout is very much like that of most of its ancestors of a century ago. Despite the "round the campfire" claims of anglers of 12- or even 14-inch wild brookies from

Brook trout are as fragile as they are beautiful. They have exacting water quality and habitat requirements.





Belmouth Run, Elk County

freestone streams, a nine-inch fish is a good one, according to Tom Greene. Some environments where feed is more readily available like beaver dams and the few Pennsylvania limestone streams where the brook trout continues to keep a toe hold may produce individuals up to a foot in length. But in the small, head-water streams where they are most prevalent, wild brookies seldom exceed eight or nine inches in length.

Smaller, less fertile waters may be teeming with brook trout, but may be incapable of producing individual fish that exceed the seven-inch minimum size limit. This is a function of the short life span of the brook trout, which seldom exceeds five years and the relatively infertile streams where they are found. It's a situation that is unchanged from when the first settlers came to call over three centuries ago.

One thing that has changed is the value and recognition awarded to the best of our wild brook trout fisheries here in Pennsylvania. This progression can be seen in the number of brook trout waters



that have been removed from the stocking list statewide in favor of wild trout management over the past 15 years. According to Tom Greene, in 1983, the Pennsylvania Fish and Boat Commission managed 41 stream sections totaling 93 miles of water as Class A wild brook trout fisheries. As of this year, that number has grown to 165 stream sections comprising 445 miles of Pennsylvania brook trout habitat under Class A management. Of Pennsylvania's 67 counties, 33 boast at least one Class A brook trout fishery, and many, like Potter, Clinton and Lycoming counties and others, have as many as eight or more.

Remember that Class A management is implemented only on the "best of the

best" of our waters. For a waterway to be designated Class A for brook trout, it must contain a wild population of at least 27 pounds of brook trout per surface acre of stream. Even though 27 pounds per acre is a pile of fish and more than enough to support a self-sustaining fishery, some small Pennsylvania

brook trout streams hold populations of more than 60 and even 70 pounds per acre. Additionally, Tom Greene reports that based on the Commission's experience in redesignation of stream sections as Class A, brook trout appear to respond much better and more quickly to the cessation of stocking than browns.

Wilderness Streams program

There are literally hundreds of Pennsylvania brook trout streams that do not meet the strict criteria for Class A management, but hold good, fishable populations of wild brookies. Many of these waters remain in the general stocking program and are closely monitored for increases in wild brook trout abundance,

which can allow them to be designated as Class A waters. Others are included in the Commission's Wilderness Streams program. While the Wilderness Streams program requires the presence of a wild trout population in a waterway, it is primarily based on providing a wilderness trout fishing experience. Aesthetics are the primary consideration. Wilderness streams must have no more than one road crossing or other point of access per two miles of stream. They must also be open to public use. The number of waters in the Wilderness program has been gradually growing over the past decade as suitable candidates are found. According to Tom Greene, these waters provide some of our best wild brook trout fishing.

Another attractive feature of the waters in the Wilderness Streams program is that because of their isolated nature, these streams may provide the best opportunity to fish over the same strain of brook trout that dominated our waters 200 years ago. The identification and preservation of indigenous strains of brook trout has become a priority for fisheries managers in many eastern states, particularly in the southern Appalachians where the species has been pushed back into the highest headwater streams by water quality degradation and competition from other trout species, particularly rainbows.

Despite all the good news about the status of our state fish, problems remain. The exacting requirements of the brook trout for pure, clean water make habitat management and preservation the most important factor in the equation that keeps the brookie prospering in our streams, and our destruction and unwise use of our natural resources continue to threaten the state fish in many areas of the Commonwealth.

Most of the damage in the past has been the result of haphazard timbering practices that allowed severe sedimentation of many streams, and the deadly acid from coal mining operations. According to Tom Greene, these activities still pose a significant threat to the well-being of our small-stream brook trout fisheries.

Acid precipitation

Greene also points to the continuing damage done to our streams by acid precipitation as a dark spot on the future of



the Pennsylvania brook trout fishery. This silent killer has already rendered many miles of Pennsylvania trout water unsuitable for stocking, and even though the brookie is the most acid-tolerant of our resident trout species, the slow and continuing acidification of some of our best smaller trout waters poses a continuing threat to our wild brook trout as well.

Surprisingly, even though angling pressure and harvest are also factors in brook trout abundance, brook trout take a back seat to matters of water quality and habitat. In general, most fishermen who key on wild brook trout streams tend to fish a "loop" or circuit of waters, resting individual streams, and distributing their harvest over a greater number of waterways.

Even in the dark side of the picture, there is good news. A portion of the receipts

from the most recent increase in the tax on gasoline in Pennsylvania is being earmarked for use by rural townships and the Pennsylvania Department of Conservation and Natural Resources in an effort to abate sedimentation and runoff from dirt and gravel roads into our trout waters. It is estimated that nearly five million dollars per year will be available for training

and remedial efforts. These funds will do much to improve the lot of wild brook trout in many of our better streams that are paralysed by dirt roads.

Despite having to live side by side with us for the past three centuries and enduring the abuse and hardships we have placed in their way, our state fish appears to be doing pretty well, all things considered. And we should be glad it is so. For the small darting shadows that flee your approach as you carefully fish your way upstream in some secluded hollow are more than just fish. They are an indicator of the health of the natural world around us. If the brook trout should ever disappear, so will the last and best of our purest coldwater streams, and we and the trout will both be greatly diminished for it.



Where to Go

Pennsylvania Fish & Boat Commission Coldwater Unit Leader Tom Greene advises that 33 of Pennsylvania's 67 counties have designated Class A brook trout stream sections. Here are some of the best bets by region:

Northwest: The small, unstocked tributaries of Tionesta Creek and the Allegheny River in the Allegheny National Forest in Elk, Warren, McKean and Elk counties offer some of the best wild brook trout fishing in Pennsylvania.

Northcentral: With abundant public land and many small streams, this is perhaps the best region of the state to chase brookies. Almost all the unstocked headwater sections of the larger trout streams hold fair to excellent populations of wild brookies, as do most of the unstocked "jump-across" rills and tiny brooks that lace the region.

Northeast: Tom Greene recommends anglers explore the small waters located on state forest land or state game lands in Lackawanna and Luzerne counties.

Southwest: Anglers looking for wild brookies can do well by exploring the smaller streams of Forbes State Forest and the small, direct tributaries of Laurel Hill Creek and the Youghiogheny River.

Southcentral: Many smaller waters tumbling off the high ridges that characterize this portion of the state offer very good fishing for native brookies.

Southeast: Even in this densely populated and most heavily farmed part of our state, there is reasonably good small-stream brook trout fishing. Tom Greene recommends exploring the more mountainous sections of Schuylkill and western Berks counties.

For more detailed information on where to go to find our state fish in its natural habitat, request a copy of the brochure *Let's Go Fishing for Wild Trout in Pennsylvania* from the Pennsylvania Fish and Boat Commission. This free brochure lists some of the streams currently designated as Class A and Wilderness waters. Write: Pennsylvania Fish and Boat Commission, Publications Section, P.O. Box 67000, Harrisburg, PA 17106-7000. Include a self-addressed stamped envelope with your request.—RLP.



PLAY

FALL
1997

Pennsylvania • League • of • Angling • Youth

SPECIAL EDITION

THREATENED AND ENDANGERED SPECIES

GOING, GOING, GONE! THE BLUE PIKE

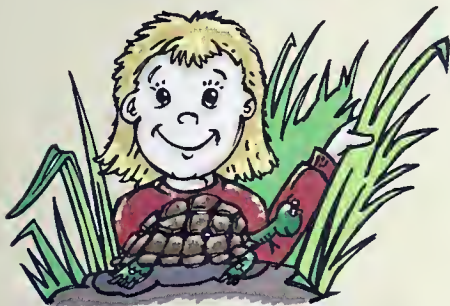


BLUE PIKE

The blue pike belongs to the perch family. The blue pike is what scientists call a "subspecies" of the walleye. That means that it's a lot like a walleye, but just a little different. They were found only in Lake Erie. Some people

think there are blue pike found in other waters. But scientists aren't sure they are the same as those in Lake Erie.

ATTENTION PLAY Readers!



This issue is unlike the others. You won't find any fishing tips in here. We don't have any safety information here, either. This issue is all about threatened and endangered fish, amphibians, reptiles and mussels. You will find stories about a few of our threatened and endangered species. You will also find information about how species become endangered or threatened. We hope you enjoy this issue. The stories and puzzles will help you learn more about these critters.

What happened to it? What can we learn?

We can learn a lot from blue pike extinction. They were abundant until the 1950s. Some 20 years later they were extinct. Why did they become extinct? Overfishing and poor water quality is to blame. We once called Lake Erie dead because pollution was so bad.



Lake Erie's water quality has improved a lot since the 1970s. Fish and other critters now thrive there.

We have learned that if we clean up the water, the critters will come back. Yet, the critters have to come from somewhere. Because blue pike lived only in Lake Erie, they couldn't come back. Now, blue pike are extinct. The blue pike story teaches us that extinction

is forever. It also teaches us that we need to protect what we have, before we lose it.

NEXT ISSUE:
ALL ABOUT
ICE FISHING!

Threatened and Endangered Species Vocabulary List

extinct (eks-tinckt)—no living members. The animal doesn't exist anywhere anymore. Dinosaurs are extinct.

extirpated (ecks-ter-pated)—Species can't be found in Pennsylvania anymore. They are found in other places.

endangered (en-dane-gered)—Might become extinct or extirpated.

threatened (thret-ened)—Might become endangered.

candidate (can-di-date)—Species that may become threatened or endangered.

species (spe-ces)—Group of related critters that have many things in common. A rainbow trout is a species of trout. A blue jay is a species of bird.



rainbow trout
is a species of trout

Endangered, Threatened, and Candidate Species List—Official list of critters that are either endangered, threatened or candidate. Pennsylvania and other states each have their own lists. There is also a list for the whole United States.

How Do Species Become THREATENED OR EXTINCT?

Everyone knows that all critters live for a while and then they die. In nature things balance. When one critter dies, another is born to take its place. Humans can mess up that balance. When there aren't any new ones, the species disappears or becomes extinct. Over-fishing and collecting take lots of critters away at once. Not enough new ones are born to replace those lost.

Changes to the habitat also hurt the species. Maybe not enough new critters survive because there is nothing for them to eat. Maybe there are no places to build nests. There might not be places to live or hide.

The critters on our list are there because of three things. They are:

1. **Habitat loss.**
2. **Water pollution.**
3. **Over-fishing or over-collecting.**

The blue pike is extinct because of all three. Some species like the massasauga rattlesnake are listed as endangered mostly because of habitat loss. The same is true about the bog turtle. Bog turtles are also collected. (You can read more about bog turtles in this issue).

Many things cause species to decline. That is why protecting what we have is important. **Remember that extinction is forever.**

Loss of wetlands=habitat loss.



What Does the Fish and Boat Commission Do to Protect THREATENED AND ENDANGERED SPECIES?

Our first job is to keep critters off the list. One way we do this is by protecting habitats. There are laws to prevent over-fishing or collecting. If a species is declining in Pennsylvania, we study it a lot. If it's endangered or threatened, we put it on the Pennsylvania list. Animals on the list get special care.

We make rules about what you can do with the animals on the list. You cannot catch, keep, sell, or kill protected critters. If you do, the fines will cost you lots of money. The punishment might even send you to jail.

The Commission also works to protect the habitat of threatened and endangered species. What good is protecting the animal if it doesn't have a home? We regularly check water quality. We look for pollutants and silt, which run off into the water. Our biologists look at the plans for large building projects. These things include shopping malls, housing developments and roads. We won't allow projects to damage important habitats.

The Commission also wants to learn more about these critters. Our scientists conduct studies on many critters on the list. We also have other scientists study critters for us. These studies are important. Some help us find where threatened and endangered species live. Other studies tell us things about habitats. Some even try to figure out ways to restore some species. That's hard work and costs lots of money.



photos- Rob Griswell

ON A FUTURE PATH

Unlike the **extinct** dinosaurs, **threatened** and **endangered** species have a chance to thrive with improved habitat and a clean environment. In the maze below, help the species get off the *Endangered, Threatened, and Candidate Species List* by helping it locate improved food and water, more shelter, and more places to raise their young.



AND OFF THE LIST

AN
ENDANGERED
SPECIES



A. IMPROVED
FOOD AND
WATER



C. MORE
PLACES TO
RAISE
YOUNG



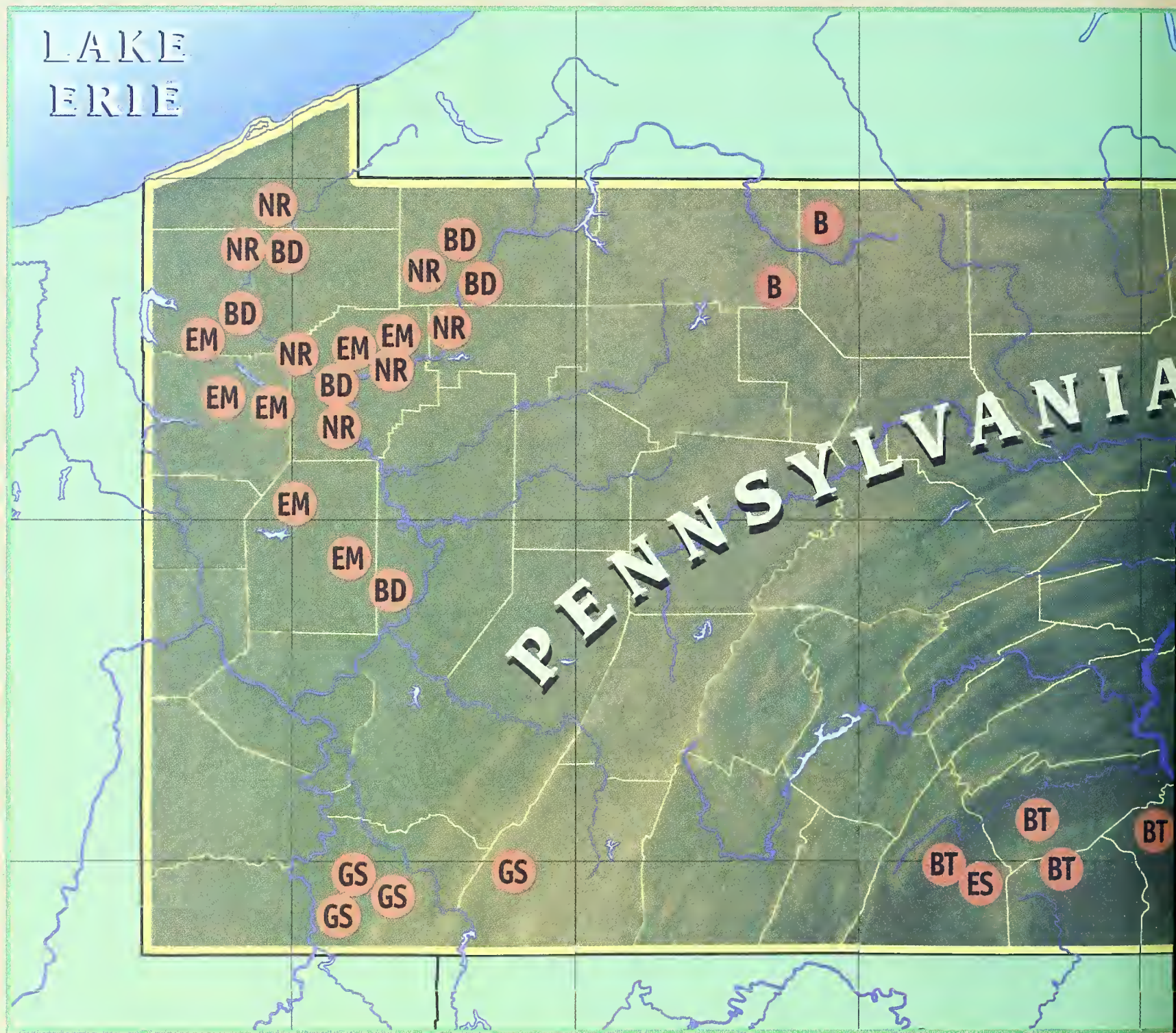
B. MORE SHELTER,
BECOMES A
THREATENED
SPECIES



D. OFF
THE
LIST!



A Few of Pennsylvania's ENDANGERED AND THREATENED SPECIES



NR- northern riffleshell mussel-**ENDANGERED**

BD- bluebreast darter-**THREATENED**

BT- bog turtle-**ENDANGERED**

B- burbot-**THREATENED**

EM- eastern massasauga-**ENDANGERED**

ES- eastern mud salamander-**ENDANGERED**

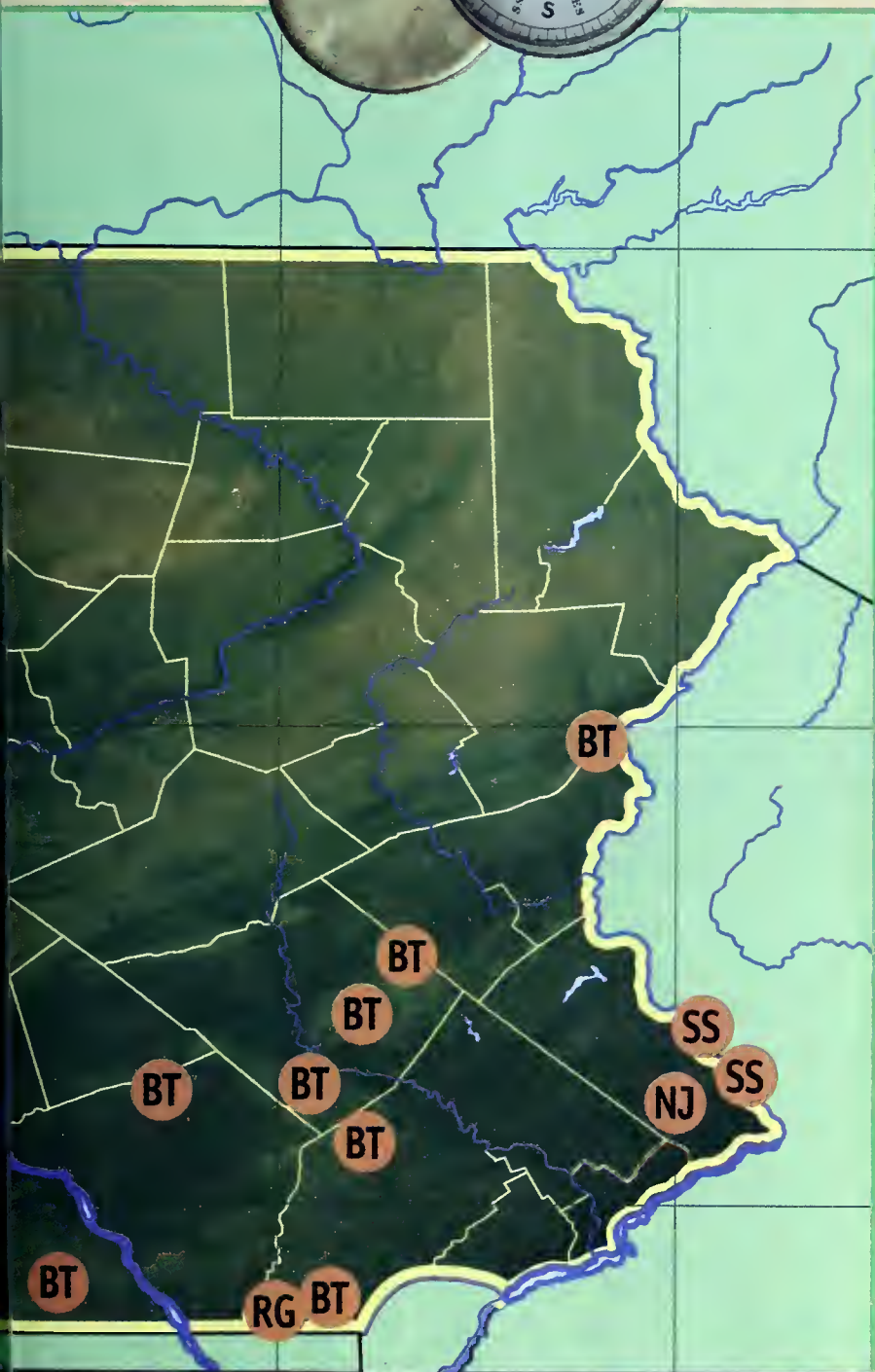
GS- green salamander-**ENDANGERED**

NJ- New Jersey chorus frog-**ENDANGERED**

RG- rough green snake -**THREATENED**

SS- shortnose sturgeon-**ENDANGERED**

LOCATIONS



ENDANGERED AND THREATENED SPECIES

ENDANGERED SPECIES

Fish:

Shortnose sturgeon
Lake sturgeon
Northern brook lamprey
Gravel chub

Eastern sand darter
Longnose sucker
Spotted darter
Tippecanoe darter
Longhead darter



EASTERN SAND DARTER: ENDANGERED!

Reptiles:

Bog turtle
Massasauga rattlesnake
Kirtland's snake

Amphibians:

New Jersey chorus frog
Coastal plain leopard frog
Eastern mud salamander



CLUBSHELL MUSSEL: ENDANGERED!

Mussels:

Northern riffleshell

Clubshell

BLUEBREAST DARTER: THREATENED!



THREATENED SPECIES

Fish:

Ohio lamprey
Mountain brook lamprey
Atlantic sturgeon
Mountain madtom
Northern madtom
Burbot
Bluebreast darter
Channel darter
Gilt darter

Reptiles:

Red-bellied turtle
Rough green snake

Amphibians:

Green Salamander

ENDANGERED AND THREATENED SPECIES

BOG TURTLE
BURBOT
GRAVEL CHUB
GREEN SALAMANDER

KIRTLANDS SNAKE
LAKE STURGEON
LONGNOSE SUCKER
MOUNTAIN MADTOM

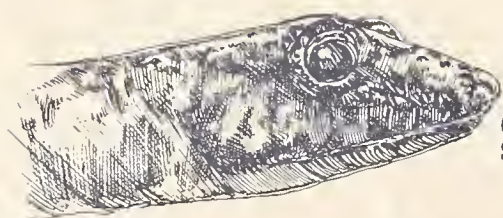
WORD

SEARCH

Find these words hidden in the puzzle. Words appear up or down, straight across either way, or diagonally either way!

MASSASAUGA
NJ CHORUS FROG
OHIO LAMPREY
ROUGH GREEN SNAKE
SPOTTED DARTER

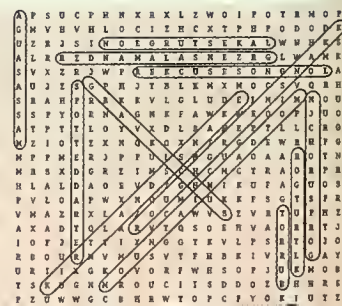
A P S U C P H N X R X L Z W D I P O T R M O F
G M V H V H L O C I Z H C X T P H F Q D O D E
U Z R J S I N O E G R U T S E K A L W N H K S
A L R R E D N A M A L A S N E E R G L W A M K
S V X Z R J W P R E K C U S E S O N G N O L A
A U J Z S G P H J T B L K M X M D C S V Q B H
S R A H P R R K K V L G L U D E L N I M N G U
S S F Y O E N A G N K F A W K W E Q O P J U D
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GREEN SALAMANDER



NJ CHORUS FROG



BOGGED DOWN

In the southeastern corner of Pennsylvania there is a battle for survival. The battle involves a small turtle and people. That turtle is the bog turtle. It is losing its habitat to human growth. More people are choosing to live and work in the same places where the turtles live. Bog turtle habitats are being destroyed for buildings, roads, malls and houses. But this is only half of the story.

Bog turtles face another threat. They are being collected out of the wild! Illegal pet dealers sell them as pets in the U.S., Europe and Asia. This hurts the population of wild bog turtles. It is also against the law!

In Pennsylvania, the Fish and Boat Commission has listed the bog turtle as an endangered species for more than 10 years. You are not allowed to collect these critters as pets or sell them to someone else. Bog turtles could become extirpated in Pennsylvania unless we try and protect the turtles we have left.



BOG TURTLE
ENDANGERED!

The bog turtle is one of the smallest North American turtles. An adult measures only 3 inches to about 4 1/2 inches long. Its shell is dark brown or black. A large bright-orange, yellow or red blotch on each side of its head makes this turtle easy to identify and pick out from other turtles. Bog turtles live in wetlands. The ones they like best are shallow, spring-fed, marshy meadows and pastures with soft, muddy bottoms. Usually, they like wetlands that are open with very few trees. They like to eat beetles, insect larvae, snails, seeds and millipedes. **YUMMY!**

1801 Pennsylvania is not the only place bog turtles live. They live in small areas from New England to northern Georgia. Here in the Keystone State, bog turtles have been found as early as 1801 in Lancaster County.

Is there anything you can do to help? Yes! Learn as much as you can about bog turtles and teach others about them. If your school has an ecology or environmental club, get involved. Talk with your teachers about what you can do in your own backyard. If you happen to find a bog turtle, leave it alone and don't pick it up. Let an adult know what you found and where you found it. You can also inform your local Waterways Conservation Officer (WCO).

With our help these small, beautiful turtles won't become

"BOGGED DOWN!"

UP TO 70 years old!



SHORTNOSE STURGEON

In Pennsylvania, shortnose sturgeon are found in the Delaware River. They can be found in a 25-mile stretch of the river from Philadelphia north to Yardley. Shortnose sturgeon can live to be more than 70 years old.

Shortnose sturgeon have no natural enemies—except humans. There were lots of shortnose sturgeon in the Delaware River before the 1800s. Back then, fishermen caught females for their eggs. We know sturgeon eggs as caviar. So many people wanted caviar that the shortnose sturgeon was over-fished. Fishing companies would catch more than 1,000 pounds of sturgeon in one day! Poor water quality during that time also hurt the shortnose sturgeon.

Recent studies tell us that an estimated 6,000 to 10,000 shortnose sturgeon are left in the Delaware River. The things shortnose sturgeon eat need clean water. Although water quality in the Delaware is improving, there aren't many sturgeon left. Commission biologists collected the sturgeon in the picture. **They were very happy to see one.**

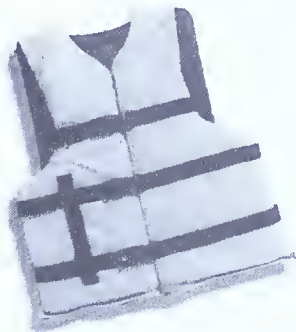


WE'RE HAPPY!



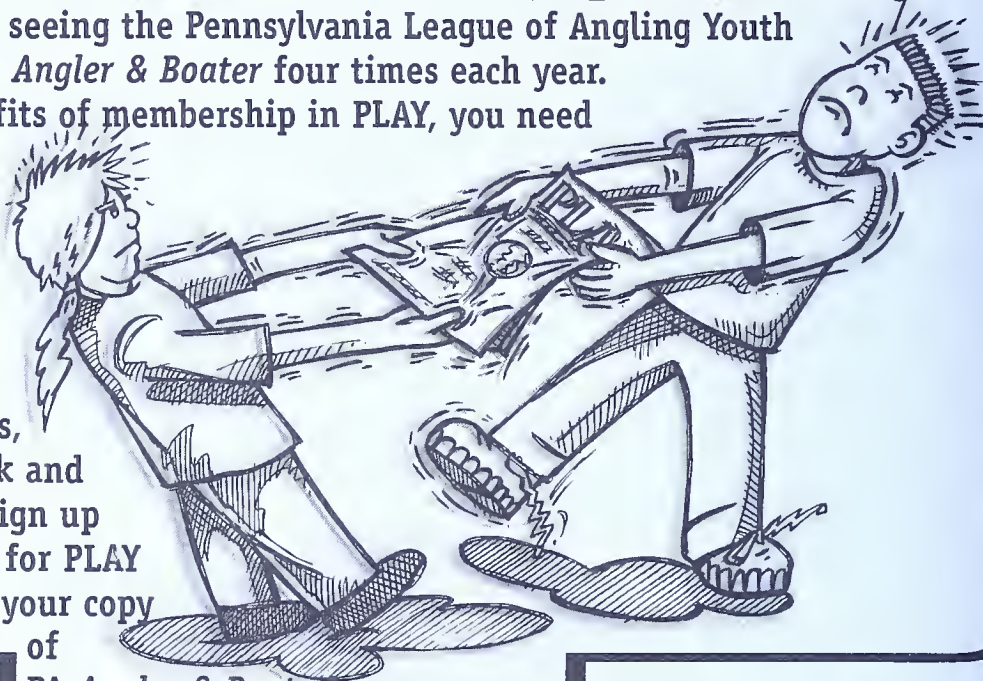
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Pennsylvania Fish & Boat Commission
P.O. Box 67000
Harrisburg, PA 17106-7000

LIFE JACKETS They Float YOU DON'T!



HEY, DON'T FIGHT OVER IT!

You can look forward to seeing the Pennsylvania League of Angling Youth (PLAY) newsletter in *PA Angler & Boater* four times each year. But to get the full benefits of membership in PLAY, you need to complete the coupon below. Full membership in PLAY is only \$3.00 per year. Members receive the PLAY Newsletter, a collectable patch, tacklebox stickers, a good luck fishing hook and several activity pages. Sign up your favorite youngster for PLAY or be prepared to share your copy



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PA Angler & Boater!

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Learn more about all of Pennsylvania's endangered and threatened species!

Have your parents order your copy of the 80-page book, *Endangered and Threatened Species of Pennsylvania*. It's loaded with maps, full-color photographs and lots of facts. It covers all of Pennsylvania's endangered and threatened species.

Please send me one copy of *Endangered and Threatened Species of Pennsylvania* at \$5.66 + \$.34 PA state sales tax. Include \$2.00 for shipping and handling. **That totals \$8.**

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FALL 1997 FALL 1997 FALL 1997 FALL 1997 FALL 1997 FALL 1997





Picturesque Trout Streams

of Pennsylvania

by Charles R. Meck

Have you checked a dictionary for the definition of *picturesque* lately? The Microsoft Dictionary on my computer defines the word as (1) suitable for a picture; or (2) striking or interesting in an unusual way. The streams I am about to describe are indeed "suitable for a picture." And you'll find them right here in our own state—not just a few, but plenty of our Keystone State streams fit this description, in any season.

Some time ago I had a deadline. I had to fly fish six streams in five days and write about them in an upcoming book. What a job! It almost took the enjoyment out of fly fishing—but no, not really. I had to fish the likes of Rock Run, Roaring Branch, Genesee River, Pleasant Stream, Tioga River and Schrader Creek; experience some modicum of success on each; and then write a detailed description of each event. All of these streams are 20 to 40 miles north of Williamsport, so I traveled from one to the other and tried to fly fish each a few hours on at least two separate days.

*Roaring Branch,
Lycoming, Tioga counties*

Quill Gordon



Wallace Run, Centre County

I headed toward my first destination, Rock Run, about 3:00 pm on a hot July afternoon. I drove up PA 14 and into the town of Ralston. I crossed an excellent trout stream in its own right, Lycoming Creek, and then drove up along the rutted dirt road. I traveled on that narrow road that paralleled the stream for more than three miles. Not once did I get a good glimpse of the stream that I planned to fish. I finally found a small pull-off area, parked the car, gathered my fishing gear, and hiked down a steep trail to the stream. Then it appeared in front of me—possibly the most picturesque stream I had ever fly fished in Pennsylvania—no, possibly the most scenic in the East. I gazed across a deep ravine with a 30-foot roaring waterfall in the foreground. Below the waterfall was a 20- to 30-foot dark-green deep, almost inaccessible pool. Upstream, a few hundred yards, nature had confined Rock Run to a narrow, deep channel that flowed not more than two feet wide. What a spectacular stream! I stood in awe of nature's work for more than a half-hour before I remembered that I had an assignment and that I had to fish the stream in the few hours that remained before dusk.

I finally found an area where I could access the stream and I immediately checked the water temperature. On this oppressively hot July afternoon I recorded

a 59-degree water temperature. I now eagerly cast that Patriot attractor pattern with a weighted Bead Head Pheasant Tail dropper 30 feet upstream in a deep run. On the second cast the dry fly quickly sank beneath the surface and I brought in a 9-inch native brook trout. It had taken the Bead Head.

I cautiously made my way upstream along some treacherous banks, huge rocks, and precipitous ledges to fish the next productive-looking section. A 20-foot pool in this section of Rock Run quickly gave up one of its most beautiful brown trout. It looked like a streambred fish, but I couldn't be certain. A second trout hit the Patriot dry fly, but I missed it.

I continued to hike upstream along Rock Run, crossing some narrow crevices, huge rocks and boulders, slippery ledges, and downright dangerous trails. At one point I slipped and fell into the stream. Have you ever done that? The first thing you do when you fall into a stream is to look around and hope that nobody saw you. I hurriedly glanced around and hoped that nobody saw that last stupid step I took. But, as luck would have it, an owner of a nearby cabin watched from a hundred feet away and cautioned me about the slippery rocks. Embarrassed that he saw me, I promised him I'd be more careful. Finally, I hiked out of the steep val-

ley and back to the car. I had spent only a couple of hours on that introduction to Rock Run, but it made an impression. I knew I'd be back.

Rock Run kept calling me back again and again and I revisited that stream four more times that year. No, I never caught a lot of trout on that stream, nor did I see a lot of hatches. But the overall awe-inspiring scenic beauty of this stream makes it a must-fish stream for every angler, especially those who enjoy nature's grandeur. Because of its scenic beauty, you'll find plenty of hikers and campers along the stream, especially in the summer, and they do add some angling pressure to the small stream.

Roaring Branch

Just a few miles north of Rock Run, anglers will find another of Pennsylvania's most scenic streams, Roaring Branch. A paved road parallels Roaring Branch, but to reach much of this stream you have to hike down a fairly steep canyon for a half-mile. The hike back up the hill after you've fished is another matter. Look for one of the trails or roads leading to the stream.

When I arrived at Roaring Branch, I stood in amazement at the stream that flowed in front of me. This spectacular water, a 20- to 30-foot wide freestone stream, flowed in a narrow, steep valley. Upstream I saw



a deep pool with a sheer cliff on the left and a boulder choke on the right. I couldn't wade through the middle of this 10-foot deep pool, so I had to hike up the hill and come back down upstream from the barrier. I caught only a couple of trout on this scenic stream, but I promised to come back again and again.

You'll find plenty of deep pools and productive riffles on Roaring Branch. I've heard reports that each year anglers catch some heavy trout on this spectacular stream.

Tioga River

The same general area of northcentral Pennsylvania also boasts plenty of other picturesque trout streams. Travel northeast of Roaring Branch about 20 miles and you'll see the Tioga River. What? You've never heard of the Tioga River? Probably because of some of the problems this freestone has had, few anglers have heard much about it. The Tioga River is really a story of two rivers—one bad, one good. Look at this stream near Blossburg and you'll see the bad one—a highly polluted stream filled with mine acid drainage and void of any insect life or trout. What a waste of a fantastic river! But travel upriver a half-dozen miles, above Fall Brook, and you'll find the good one—a trout stream filled with plenty of planted and holdover trout and a good supply of native brook trout. Few people travel upriver to see the better half of this Jeckyl-and-Hyde stream. Park in the County Bridge State Park area and fish the river either upstream or down.

Calling it a "river" in this section is a misnomer. In its upper end the Tioga River ranges from 20 to 50 feet wide.

Schrader Creek

You'll find another scenic stream just 30 miles southeast of the Tioga River—Schrader Creek. Anglers who fish it frequently agree that it's one of Pennsylvania's most scenic. Schrader Creek, however, has recently fallen on bad times.

Do you want to see how floods can effect a stream? Look at the valley through which Schrader Creek flows and you'll see the real power and fury of a natural disaster like a flood. Schrader Creek suffered severely from high water in late January of 1996. It will take years for it to recover.

Schrader Creek flows through an isolated valley just southwest of Towanda. Access to the stream is limited. You can reach the stream from the east via Weston Road, and from the north on Foot Plains Road, and Carbon Road from Leroy, or Mountain Road and Foot Plains Road from Franklindale.

Schrader is one of the most spectacular streams I've ever fished. But Schrader Creek has some severe problems that will affect its merit as a trout stream in the future. As with Tioga River, Schrader Creek holds some tributaries that empty a small amount of acid mine drainage into the main stem. Furthermore, as I described earlier, Schrader Creek suffered substantially from the flood of January 1996. Just drive up Schrader Creek Road, which

parallels the stream, and you can see for yourself what damage that flood has wrought. Huge sections of the dirt road had to be rebuilt. Boulders and trees along the shore were stacked up by the high water neatly in piles like toothpicks.

Schrader Creek has other problems. Because of the acid problems the stream has, it holds few hatches. You'll find a few March browns and light cahills, but I have rarely seen enough insects emerge to bring trout to the surface.

Will Schrader Creek return to the prominence it should have? Will hatches it once had reappear in good numbers? With the diligence of state organizations and local groups like the Schrader Creek Watershed Association, it should.

Hemlock Creek

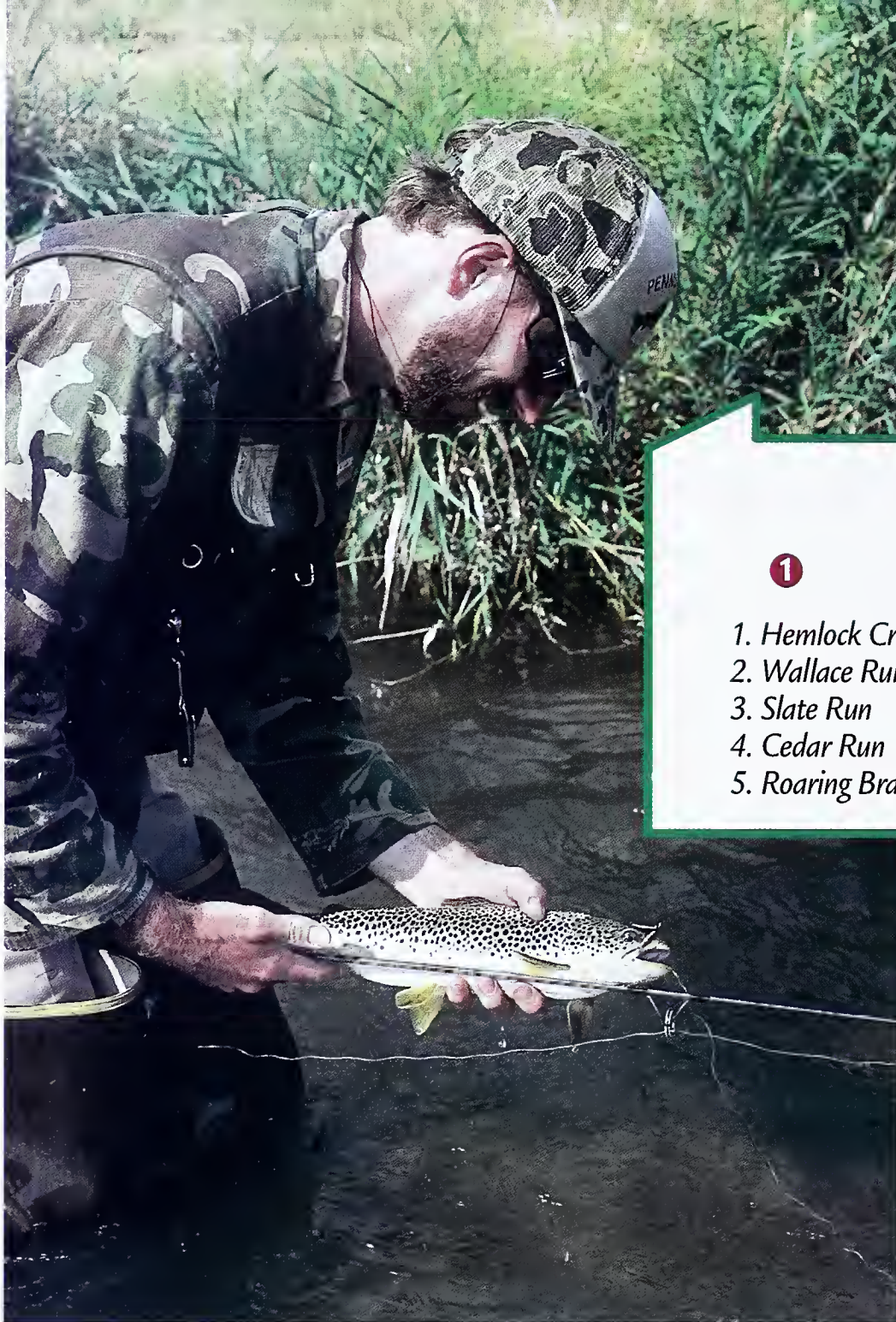
Hemlock Creek, in northwest PA, is another picturesque stream. You'll find this highly unusual stream entering the Allegheny River at the town of President, just north of Oil City. It's one of those anomalies in the Keystone State. Hemlock holds a good number of streambred rainbow trout. Farther upstream on Hemlock the stream becomes even more picturesque. You'll find a heavy canopy with plenty of pocket water and pools on this 15- to 25-foot wide freestone stream. Hemlock Creek even boasts a green drake hatch.

The Poconos

The Pocono Mountains of northeastern Pennsylvania hold a share of picturesque trout streams, including Mud and

Strikingly beautiful scenery and a 10-inch rainbow trout like this one make fishing PA's picturesque streams exciting.





Much of the “extra” in fishing is the year-round scenic splendor and beauty of our streams and their surroundings.

1

1. Hemlock Creek
2. Wallace Run
3. Slate Run
4. Cedar Run
5. Roaring Branch

3

4

5

6

8

2

6. Pleasant Stream
7. Rock Run
8. Schrader Creek
9. Hickory Run
10. Mud Run

9

10

Cedar, Slate runs

You'll find two other picturesque trout streams entering Pine Creek in north-central PA. Not only are Cedar and Slate runs two of the most scenic, but they are also two of the most productive. You'll find hatches on these two from the beginning of the season, ending in late September. The lower end of Cedar with its high, overhanging cliffs is especially picturesque.

I know there's more to fly fishing than just catching trout. Much of that extra in fly fishing, and fishing in general, is the scenic splendor and beauty of the stream and its surroundings. Look at two examples of streams only 50 miles apart. Logan Branch flows along PA 144 and empties into Spring Creek at Bellefonte. It holds a great number of streambred brown trout and some decent hatches. But for much of its journey, it also flows within feet of a busy highway. Although I catch trout there I miss that isolated, quiet solitude of many of Pennsylvania's more secluded streams.

Baker Run

Baker Run, in contrast, flows under PA 120 halfway between Renovo and Lock Haven. Once you head upstream from that state highway you're in an idyllic setting. No, you won't catch the number and size of trout you'll catch on Logan Branch, but you'll enjoy the total fly fishing experience.

Hickory runs. I'll never forget the first time I hiked into the lower end of the open section of Mud Run. With friends I hiked more than two miles to reach this tannic-colored stream. For the last quarter-mile we had to crawl on our hands and knees to get through the thick growth of rhododendrons. Was the hike worth it? You bet it was! When we reached the stream we saw deep pools guarded by giant boulders. No, you won't find any trail or patch along this section of Mud Run. Even when you reach the stream, it's difficult to travel along the stream bottom. You'll find rhododendrons and huge boulders hugging the shore. We caught only a handful of streambred trout before we headed back to the car, but just the stream and the setting make Mud Run a must-fish stream.

Another good area is on Hickory Run downstream from PA 534. The stream there is 15 to 30 feet wide. On this section of Hickory Run you'll find productive pools and riffles, and some deep pocket water before it enters the Lehigh River.

Wallace Run


What about other picturesque streams in Pennsylvania? I enjoy fishing on central Pennsylvania's Wallace Run, Centre County. PA 144 closely follows the first three miles of this freestone stream, but above that you'll find plenty of deep pools, waterfalls, a heavy canopy and some good hatches. I've seen quill gordons emerge daily on this stream for two weeks in April.

PFBC EXHIBITS '97



The Pennsylvania Fish and Boat Commission has been "on the road" throughout this year with its exhibit program. Using "Fishing and Boating Memories Last a Lifetime" as a cornerstone, the exhibits featured nostalgic archive photos of anglers and boaters who had made their own memories.

Commission personnel continued to inform and educate in all regions of the Commonwealth—from Erie to Fort Washington (Philadelphia), from Bloomsburg to Pittsburgh, from Clearfield to Chambersburg we were there. In the event you missed us, the following are a few snapshots from our picture album.

We hope to see you in 1998! 



Above, Tom Kamerzel, Assistant to the Director of Law Enforcement, puts the finishing touches to the 30-foot exhibit assembled for the Harrisburg Sports and Outdoor Show. Tom's craftsmanship went into producing the oak counters pictured here and gave the exhibits an award-winning look! That's not just a phrase—the PFBC exhibit at the York Chapter #67 Outdoor Show was awarded "Best Non-Commercial Exhibit."



Inspired by Luther Hall's fine-art painting of two generations, the "Memories" logo was used on the exhibits and theme products for sale at the shows.



Above, WCO Don Lauver concludes a sale to a happy angler ready to make his own memories. Attending over 50 venues this year, PFBC exhibits are gathering places to obtain licenses, regulation updates, publications, and a friendly smile.



photo-Ted Walke



photo-Ted Walke

Exhibits were not just an indoor attraction. The exhibit shown above was produced by Southcentral Region Assistant Supervisor Guy Bowersox for York County's Youth Field Day. It used the back of a towed trailer and featured the "Memories" exhibit and a fish identification quiz.

Worked by WCO Lee Creyer (pictured at left) and WCO George Geisler, the exhibit generated a lot of interaction.

Improving Blue Marsh Lake's Habitat *by Roger Mallon*

Before 1991, Christmas trees were one of the most popular artificial structures used by the Pennsylvania Fish and Boat Commission to enhance the habitat on the bottom of barren lakes and reservoirs in the Commonwealth.

During the winter months, volunteers and Commission personnel gathered discarded Christmas trees, weighted them with cement blocks and hauled them to selected sites on frozen lakes. When the ice melted, the trees sank to the bottom, creating havens for many species of fish where they can rest, hide and feed.

Christmas trees continue to be used as habitat on lakes and reservoirs throughout the Commonwealth, but not by the Fish and Boat Commission. Seven years ago, the practice was ended when research by the Commission's Habitat Management Section revealed that Christmas trees disintegrated quickly, often in less than three years, and their presence on the lake bottoms served primarily only as fish attractors and did little to sustain the continuing needs of the bass fisheries.

"We used to sink Christmas trees, pipes, tires, broken concrete, any discarded materials we thought could be recycled as fish habitat," says David Houser, Chief of Habitat Management at Pleasant Gap Hatchery near Bellefonte.

"Our planning meetings often migrated to the junk pile behind the hatchery to see what might be out there for us to use," he said.

Houser's team runs the Commission's Adopt-a-Stream and Adopt-a-Lake programs, working with state and federal agencies and volunteer organizations to improve habitat and fishing productivity on Pennsylvania's waterways.

"Back in the 1980s we faced two problems," says Houser. "First was the message we were sending to the angling public. They saw us as a professional agency placing all this discarded material in the reservoirs, and as imaginative as we were, the public grew far more imaginative. They started placing all of the junk they had around their yards into the lakes as well. It got to the point where many reservoir managers would not allow habitat work to be done anymore because it just got too extreme.

"Secondly, we realized that the recycled materials we were placing in the reservoirs was functioning purely as a fish attraction idea rather than being more like natural structure, which helps fish accomplish their tasks and serves the whole food chain in the lake."

A different sort of structure was needed. They wanted a structure that would be long-lasting and that could be built easily from rough-cut lumber. It had to be transportable by boat instead of being hauled onto frozen lakes like the Christmas trees, and it had to absorb water, be conducive to plankton growth and provide dense enough cover to protect juvenile fish from predators.

In 1990, after a year of experimenting and countless trips to the lumber pile behind the hatchery, Houser's team developed



Berks Bass Masters have worked for 10 years to improve the quality of bass fishing at Blue Marsh Lake, Berks County. The continuing Adopt-a-Lake project is a cooperative effort among Berks Bass Masters, the U.S. Army Corps of Engineers, and the Fish & Boat Commission.

the porcupine brush crib, one of the most innovative lake habitat improvement devices in the country.

Named the "porcupine brush crib" because of its pointed, gabled appearance, these 400-pound structures are four feet wide by 46 inches tall, weighted with eight concrete blocks, and made of rough-cut boards stacked two inches apart in a pyramidal shape. The boards are nailed together and secured with nylon banding, making them durable enough to last 10 to 15 years underwater.

"In 1991, we put the first cribs in Yellow Creek Lake in Indiana County," says Houser, "although we continued to fine-tune the design. We wanted to make sure they were structurally sound and would sink upright 100 percent of the time."

To date, Houser's team has sunk more than 4,500 porcupine brush cribs in 40 lakes and impoundments throughout the state, catapulting the Fish and Boat Commission to among the nation's leading innovators in habitat improvement practices.

"We are on a very steep learning curve," says Houser, "but we have reached the point where we now have a base of experience and information that gives us confidence in our approach."

Research is needed, though, to prove the cribs are more than fish attractors, that, in fact, they add to the food chain and aid in fish recruitment, the process of fry maturing into juveniles. If those elements can be proven through controlled research, then the claim could be made that the cribs replicate natural structure and positively affect the overall health of the lake.

Of the 40 lakes where porcupine brush cribs have been placed, the majority are state park lakes under management of the Department of Conservation and Natural Resources and flood

control impoundments built and managed by the U.S. Army Corps of Engineers.

Local bass clubs and conservation groups frequently work in conjunction with the state and federal agencies and occasionally approach Houser to "Adopt-a-Lake" on their own.

"We're approached by groups and individuals who are concerned with the quality of their local fishery. They may see a decline in the catch rates or increased fishing pressure. They may be volunteer groups looking for projects that contribute to the environment," says Houser.

One such organization is the Berks Bass Masters, who have worked for 10 years to improve the quality of bass fishing at Blue Marsh Lake in Berks County, a 1,150-acre impoundment built by the Army Corps of Engineers in the late 1970s.

The Berks Bass Masters were recognized earlier this year by Fish and Boat Commission President Donald Lacy, who applauded the club's volunteer efforts to improve the lake's habitat.

Cleon Garl, of Reading, current president of the Berks Bass Masters, recalls when fishing first opened at Blue Marsh Lake: "Bass fishing was great for the first few years—not much size to them, but lots of fish. We could catch 20 to 30 bass per outing, but then in the mid 1980s, we saw the catch rate decline."

Electrofishing surveys conducted by Area Fisheries Manager Mike Kaufmann confirmed a decline in the lake's bass population. According to Kaufmann, surveys taken in 1982 produced an overall bass catch rate of 45 fish per hour, which exceeded the state's productive fisheries target of 35 bass per hour. Then in 1986, survey results took a nose dive to only seven bass per hour, adding fuel to the Bass Masters' concern that something was wrong at the lake, and precipitating the establishment of the 15-inch size limit on bass in 1987 by the Fish & Boat Commission.

When Blue Marsh was constructed, bulldozers scoured the bottom clean, removing good habitat for structure-oriented fish like bass, and the Berks Bass Masters believed that if the lake needed structure, then Christmas trees were the answer. So one winter day in the late 1980s they set about gathering discarded Christmas trees and piling them on the frozen lake.

According to Bill Reichert, of Cressona, habitat coordinator for the Berks Bass Masters, the project came to an abrupt halt when the local water authority and the Army Corps of Engineers pointed out that the club had not obtained permission to sink the trees.

A heated meeting ensued, and John Waelchli, president of the Berks Bass Masters at the time, demanded that the club be allowed to do something to help the fishery.

The club began working with local Waterways Conservation Officer Ammon Ziegenfuss, felling 200 trees along the lake's 11-mile shoreline. In 1990, the club obtained permits to sink several hundred brushpiles. The following year, Ziegenfuss introduced the Berks Bass Masters to David Houser, whose Habitat Management team recently had developed the odd-looking porcupine brush crib.

"We were looking for a big project," says Houser, "and the biologists and others in the Commission suggested that Blue Marsh Lake would make an excellent large-scale undertaking."



So the Berks Bass Masters adopted Blue Marsh Lake under a five-year program, now extended to six years and counting. Working closely with the Army Corps of Engineers and the Commission's Habitat Management Section, the club has built and sunk 276 porcupine brush cribs in Blue Marsh Lake.

According to Reichert, the project cost to date is \$11,340. The Fish and Boat Commission has contributed \$3,000 in funding and provided

technical assistance, boats and manpower. The Berks Bass Masters have generated more than \$8,000, including a grant of \$3,200 from the Fish America Foundation, and \$5,140 raised from flea markets and open buddy bass tournaments at the lake. Local suppliers have given generous discounts on materials, and club members, local Boy Scouts and others have volunteered thousands of hours of labor to help improve the quality of habitat in Blue Marsh Lake.

The most recent electrofishing surveys have shown a tremendous rebound in the bass population at Blue Marsh. Increases have been greatest in the no-wake zone, which includes 50 percent of the lake's surface area. Bass 12 inches and longer, and "big bass" 15 inches and larger, have increased throughout the lake. But the no-wake zone in particular, which has much better bass habitat, ranks among the top four Big Bass waters in southeastern Pennsylvania.

"It's still a tough lake to fish," says Reichert, "but at least we know the bass are there."

Black bass nesting structure

In 1993, Houser's team developed a second habitat structure, this one designed especially for nurturing bass. Called the black bass nesting structure, it has elements of the porcupine brush crib, particularly in its base, but the structure is only two feet tall and has eight-foot boards secured to the top, which create nesting cover for bass in shallow water.

Blue Marsh Lake is one of the first lakes in the state to receive the nesting structures. In the past two years, the Berks Bass Masters have built and placed 125 of the nesting units in shallow spawning areas selected by Kaufmann.

Preliminary research indicates that the porcupine brush cribs and the newer bass nesting structures are enhancing the habitat at Blue Marsh and other lakes throughout the Commonwealth. How big an effect the cribs are having is yet to be determined. As Kaufmann points out, "There are many factors that play a role in the health of a fishery."

Working with biologists and concerned organizations like the Berks Bass Masters, Houser and his team in the Habitat Management Section look for the ways to improve habitat that have lasting, positive effects on fish habitat. Quick fixes, like sinking Christmas trees, have proven to be only short-term answers to complicated, long-term natural dilemmas on many lakes throughout Pennsylvania. □

Blueprint-size underwater structure maps of Blue Marsh Lake, which include the locations of porcupine brush cribs and bass nesting structures, are available for \$5.00 from: Berks Bass Masters Club, 4853 Kutztown Road, Temple, PA 19560. Profits from these map sales help fund the club's habitat improvement projects.

Endangered Species and the PFBC

by Linda Steiner



This red-bellied turtle is listed as threatened in Pennsylvania. Threatened and endangered species under the regulatory jurisdiction and protection of the Fish and Boat Commission include fish, reptiles, amphibians, aquatic invertebrates (crayfish and mayflies, for example), and freshwater mussels. Currently 29 species are classified by the Commission as endangered or threatened in the state: 18 fish, five reptiles, four amphibians and two mussels.

"Say the word 'endangered species' and people immediately think of 'bald eagle.' If we could get them also to think 'bog turtle,' then we'd be doing something."

So says Andrew Shiels, the Pennsylvania Fish and Boat Commission's Nongame and Endangered Species Unit Leader. High visibility, charismatic species like bald eagles, ospreys and peregrine falcons are what most Pennsylvanians identify when asked to name an endangered species. But there are other endangered species that, although certainly not forgotten, haven't gotten as high-profile press as the warm-blooded birds and mammals.

These "others" are the wildlife species that are under the regulatory jurisdiction and protection of the Pennsylvania Fish and Boat Commission. These are fish, reptiles, amphibians, aquatic invertebrates (like crayfish and mayflies) and freshwater mussels. They are varied, interesting and valuable, and they fall within the Fish and Boat Commission's mandate of overseeing natural resources. And they are the job of Andrew Shiels.

The law

What is the Fish and Boat Commission's role with endangered and threatened species? First, it has legal jurisdiction, authorized by Pennsylvania law. Under Section 2305 of the Fish and Boat Code, "the executive director shall establish a Pennsylvania Threatened Species List and a Pennsylvania Endangered Species list."

But having a list is no good if there isn't some clout for protecting the animals to go with it. So the law continues that the Commission "may promulgate rules and regulations governing the catching, taking, killing, importation, introduction, transportation, removal, possession, selling, offering for sale or purchasing of threatened and endangered species."

In general, the rule or regulation the Commission has set has been a prohibition of the mentioned activities, unless a special permit is obtained from the Executive Director. In cases like scientific study, permits may be issued for catching and possessing any of the endangered and threatened species.

Violations are serious: Even though many Fish and Boat Code infractions are summary offenses, on the same level as going through a stop sign, if you do something you shouldn't with an endangered or threatened species, it's a misdemeanor offense. Look for fines from \$250 to \$5,000

Atlantic sturgeon, threatened



and/or 90 days in jail, fingerprinting, mug shots, the works. If you inadvertently capture an endangered species, say a rare darter in your minnow seine, release it immediately where you got it, and you're OK with the law.

Federal listing, state listing

Currently there are 29 species that are classified by the Commission as endangered or threatened in the state, listed in the 1997 fishing and boating regulations: 18 fish, five reptiles, four amphibians and two mussels. They vary from the big Atlantic sturgeon to the little Tippecanoe darter, and from the bog turtle of the southeast to the massasauga rattlesnake of the northwest (see sidebar on page 45). There are another 28 fish and three reptiles that are candidates for endangered or threatened species listing.

Endangered, threatened, candidate, what does all that mean? Being a species in trouble in Pennsylvania is different from being a federally endangered or threatened species. According to Shiels, the federal government, under the Endangered Species Act of 1973, due for consideration for reauthorization by Congress this year, takes a regional approach. "The U.S. Fish and Wildlife Service won't put a species on the list if it is common in several states, but may have disappeared from or be declining in another one," says Shiels. If a species is federally endangered, it's in deep trouble nationwide. And a species listed by the federal government is "ipso facto" on the state list, says Shiels. Federal protection, he adds, is a lot stronger for a species than state listing. State listing of a species concerns the animal's status within state borders. "They were here for a reason," says Shiels. Sometimes that is because Pennsylvania is on the edge of a species' range, or it is in a habitat that is uncommon in the state. In other cases,

what's left is a vestige of what was originally present throughout or over a large part of the state. Even the rare species are an integral part of our wildlife diversity. If we lose them, we usually lose habitats and ecosystems, with other plants and animals, as well.

The book *Endangered and Threatened Species of Pennsylvania*, published by the Wild Resource Conservation Fund, with Pennsylvania Fish and Boat Commission and other state agency and conservation organization input, defines the terms for state species so we all can understand:

"Endangered" means: "Species in imminent danger of extinction or extirpation throughout their range in Pennsylvania."

"Threatened" means: "Species that may become endangered within the foreseeable future throughout their range in Pennsylvania."

"Extirpated" means: "Species that have

disappeared from Pennsylvania but still exist elsewhere."

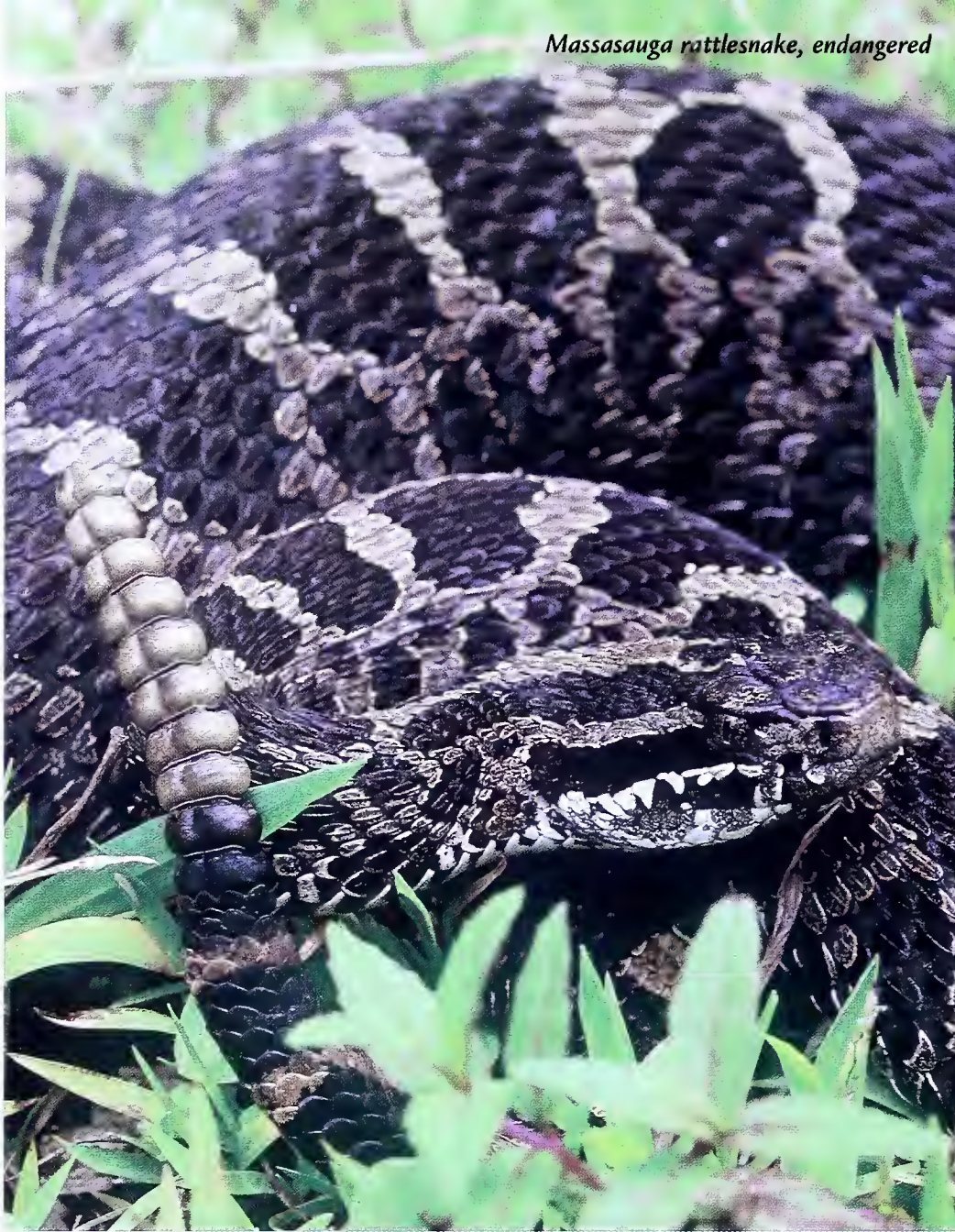
"Extinction" means: "Species that occurred in Pennsylvania, but no longer exist across their entire range." And extinction (as in there are none left anywhere) is, as they say, forever.

Candidate species are those that may not be on the "sick list" yet, but have suspicious "symptoms" that require watchfulness and caution. There are bag and possession limits that restrict or prohibit their taking. For example, the timber rattlesnake is a candidate species that has about a month-and-a-half-long season and the annual possession limit is one (except for regulated hunts, which require special permits). The Commission urges anyone who catches a candidate species to release it "immediately and unharmed to the waters or other area from which it was taken."



The clubshell mussel (above) and the riffleshell mussel are the two mussel species endangered in Pennsylvania.

Massasauga rattlesnake, endangered



Endangered, threatened and candidate species, says Shiels, were listed by a consensus of the informed and educated judgment of members of the Pennsylvania Fish and Boat Commission's Herpetology Advisory Committee and Fish Advisory Committee—ichthyologists, fisheries biologists, herpetologists and representatives of user groups.

Shiels says that eventually, with better compilation of records and species location mapping, a more objective system of classifying animals will be used. This will be based on the number of places a spe-

cies is found, with cut-off points between the categories.

Wild Resource Conservation Fund

"We'll have this at least for fish in the very near future," says Shiels.

Why are there no aquatic invertebrates (other than mussels) on the list? Are all of the mayfly species in good shape? Shiels says that data is still being collected on aquatic invertebrates and insects, especially through studies funded by the Pennsylvania Wild Resource Conservation Fund,

and that we'll soon have more hard facts about their status. He suspects that some aquatic insect species may be found only in one or two waters in the state. The Fish and Boat Commission works closely with the Wild Resource Conservation Fund, known to most Pennsylvanians as the state income tax check-off (donate your refund) and the "owl" vehicle license plate ("Conserve Natural Resources").

Frank Felbaum, Executive Director of the fund, says they work "hand in glove" with the Fish and Boat, and Game commissions, paying for information-gathering about species. Last year over \$700,000 was approved by the fund for 56 natural resource projects, but the need was greater: there were 84 applications requesting over \$1.3 million.

In the last several years, some of the projects approved, which will help the Fish and Boat Commission know more about species in trouble, included a study on the "Ephemeroptera of Pennsylvania" (mayflies—see page 48 of this issue), "Status Sur-



Green salamander, threatened

Ohio lamprey, threatened





Longnose sucker, endangered

(reptiles and amphibians) for the state.

In the past, up to \$1 million a year has come out of the fund for conservation projects that ranged from the Pennsylvania Natural Diversity Inventory (determining locations of endangered, threatened and rare species and outstanding examples of the state's natural community and geologic features), to otter reintroduction, to studying the distribution of the state's freshwater jellyfish.

The fund is supported solely by voluntary contributions, but donations from the license plate and tax check-off have been declining. The Wild Resource Conservation Fund may be in existence only another year, unless a new source of money is found, cautions Felbaum. "Without our money available to collect information, the agencies would be hamstrung for making decisions on managing and protecting a particular species," says Felbaum.

Permit reviews

Just listing, prohibiting the capture of, and finding out where endangered and threatened species are isn't enough. Shiels says that a large part of his job is doing permit reviews for development, such as proposed highways, bridges, housing complexes and business expansions—about 1,200 reviews a year. By using the computer database of the Pennsylvania Natural Diversity Inventory, the currently known whereabouts of endangered, threatened and candidate species can be tracked. Those permit reviews are "the front line of endangered species protection," says Shiels.

Yet, despite what opponents of endangered species laws may say, not one proposed development or building project has been stopped in the state by Shiels's review on behalf of the Fish and Boat Commission. Instead, the review is a common-sense approach that uses knowledge to avoid making irreparable mistakes.

Shiels says he works with development

project designers to avoid or minimize effects on species in trouble and the places they live. That may mean suggesting the relocation of an access lane to miss the portion of project land that has endangered species habitat, or building a bridge over a wetlands instead of filling it in for a roadway.

It can also mean advising that the work be done during a certain time of year, when the animals won't be on the site. For example, ground could be cleared for a pipeline in the winter, when the animals are in underground dens elsewhere,

effects on the species in question."

Shiels is helped in his reviews by a contract employee, and they may go to a proposed project site to determine the best way around harming an endangered or threatened species that's there. Mostly the work can be done in the office, with the database, aerial maps and reports from the environmental consultant to the project. Species are endangered or threatened because they are found only in a few places, so most land alterations won't encounter them.

Although there are endangered and



Potomac sculpin, candidate

instead of in summer, when they're active on the surface.

"A lot can be done by applying knowledge of the biology of the animal," says Shiels. "People hear the words 'endangered species' and they think all kinds of money has to be spent and it's doing all kinds of terrible things to development, when many times the situation is resolved with just the cost of a stamp for the envelope—that is, submitting the necessary information about a particular project. This could help characterize the on-site habitat conditions to allow judgments to be made regarding the possible

threatened species that "just happen" to occur on Fish and Boat Commission properties, says Shiels, the Commission has not actively purchased land or water areas to protect specific animals.

"We would like to see that, but there are budget constraints," he adds. Most species in trouble occur on private property, and Shiels says the private landowners fear that "someone is going to come knocking on the door" doesn't really happen. Unless a permit is required for an activity, the Commission is not involved.

That doesn't mean that doing the "right" thing with your property, to not

Endangered Species and the PFBC



photo: Rob Criswell

Electrofishing is one way the Commission finds where threatened, endangered and candidate species live.

cause an extinction or an extirpation, should be ignored. In southeastern Pennsylvania, says Shields, the public is more receptive to endangered species protection, with landowners who are proud to have bog turtles on their ground. In the northwest, the other endangered and threatened species hotspot, the reception to modifying land use to minimize effects on troubled species has not been warm. Some counties have even turned down money to have the Natural Diversity Inventory done within their borders because of (unfounded) complaints and fears expressed by some of the public and a private landowners' advocacy group. Protecting habitat remains the "weakest link" in the endangered species conservation chain, says Shields.

Education efforts

That's where education helps, says Shields. The Wild Resource Conservation Fund has a new video on the endangered bog turtle, and one on the timber rattlesnake, for example. Plus publications, presentations and articles highlighting these species are at work informing the public. However, says Shields, sometimes it takes generations for a new attitude to develop.

Rattlesnakes, for instance, are just coming out of the, "the only good one is a dead one" phase that haunted hawks and other birds of prey not long ago. Perhaps rattlers will also become socially accepted, even encouraged. Much remains to be known, but research is finding, says Shields, that rattlesnakes are very much homebodies. One study discovered that 60 percent of the timber rattlers released in an area

other than the one from which they were captured, died. Besides just being a natural part of the Pennsylvania outdoors, and deserving of respect as such, scientists are looking into using rattlesnake venom in fighting cancer tumors.

The little Massasauga rattlesnake of northwestern Pennsylvania is currently the most endangered of the wildlife under the Fish and Boat Commission's jurisdiction, says Shields. This is because its habitat has become fragmented and individual populations isolated, because not as much is known about it as some other endangered species, and because so many of the remaining snakes live on private property. In addition, the Massasauga is very fussy about its wetland type and the prairie-like uplands it uses at different times of the year. Being venomous has also been a strike against the Massasauga with the average person, says Shields, who may not realize how shy and rare the "black snapper" is.

Some of the education about endangered and threatened species is aimed at professionals, says Shields, such as a training seminar that included Department of Environmental Protection, Army Corps of Engineers and Pennsylvania Conservation District personnel, to help them recognize bog turtle habitat and protect it.

Reintroduction?

What about reintroducing endangered or threatened species into suitable habitat, as has been done with otters, fishers and ospreys? Although that's a possibility, Shields is hesitant in predicting it will work with reptiles and amphibians. "There are at least as many failures with reptiles as successes," he says.

Genetic differences between pockets of the animals could result in the bloodline of the new arrival being harmful to the population it's just joined. But genetic work is being done with bog turtles and timber rattlesnakes, says Shields, looking at how closely related populations are. If compatible, a move several counties over might be possible. However, says Shields, reptiles are slow to mature, long-lived, and give birth at long intervals. It may take a dozen or more years, "a [biologist's] career," he explains, to determine if the reintroduction investment was worthwhile.

Besides the threat of habitat fragmentation and destruction, there are also endangered species poachers. "Our officers in certain areas, where there are certain species, are extra vigilant," says Shields. Waterways Conservation Officers keep an eye on what's happening in sensitive locations, and look out for unusual activity that might mean poaching or trafficking in illegal species.

Shields says the bog turtle, found in 13 eastern Pennsylvania counties, has serious poaching problems, being bought and sold, even sent overseas. A pair of bog turtles can sell for \$2,000 in Japan and Europe. "It's the profit motive," laments Shields, adding turtles are currently the most collectible contraband pet. In the last 20 years, bog turtle populations have dropped 50 percent over their range.

Ed Manhart, Director of the Commission's Bureau of Law Enforcement, echoes that concern. Manhart says the Bureau works with the U.S. Fish and Wildlife Service, exchanging information about endangered species violators and problems headed this way.

“Once a species has been declared ‘endangered’ the price tag goes up,” says Manhart, since unscrupulous collectors will pay “big bucks” for the animals, especially when they are first listed as endangered.

The Bureau of Law Enforcement “doesn’t have much routine time to spend trying to find endangered species violations,” says Manhart, explaining that they act mostly on complaints or information received.

In some states the problem is mussels, since “seed” for cultured pearls is made from the shells of freshwater mussels, and endangered and threatened species may be taken. But Pennsylvania, says Manhart, doesn’t have as many good mussel rivers as states like Tennessee, Ohio and West Virginia, and mussel poaching isn’t as much of a concern here.

But, says Shiels, of all the in-the-water animals, freshwater mussels are the most in peril in Pennsylvania. As a group they have declined drastically, yet it’s hard to fire up public concern about the plight of something called a “clubshell,” for one species. Yet, that and other freshwater bivalves help determine and reflect the health of a stream ecosystem. Mussels are considered to be more of an indicator of good water quality, by their presence, or degraded, by their absence, than the sensitive mayfly.

French Creek, in northwestern Pennsylvania, is the champion waterway for diversity of aquatic species, with far more than other streams in the state. French Creek is also home to more than a few endangered and threatened species, like the bluebreast darter, northern madtom (a small catfish) and northern riffleshell (mussel). French Creek is of special concern for species in trouble, and the French Creek Project (see the July/August 1997 issue), based in Meadville, is spearheading local education and awareness of the stream’s unusual riches, and working with landowners in the drainage to avoid pollution and minimize siltation.

In Pennsylvania, including exothermic (cold-blooded) and endothermic (warm-blooded) animals, and plants, more than 350 species are at risk of being lost. If you would like to find out more about them, the Wild Resource Conservation Fund has an 80-page booklet called *Endangered and Threatened Species of Pennsylvania* (\$6 donation), and videos on bog turtles and rattlesnakes (\$20 donation for one). Contact the Fund at P.O. Box 8764, Harrisburg, PA 17105-8764.



PA Fish and Boat Commission List of Endangered and Threatened Species

Endangered Fish:

Shortnose sturgeon
Lake sturgeon
Northern brook lamprey
Gravel chub
Eastern sand darter
Longnose sucker
Spotted darter
Tippecanoe darter
Longhead darter

Threatened Fish:

Ohio lamprey
Mountain brook lamprey
Atlantic sturgeon
Mountain madtom
Northern madtom
Burbot
Bluebreast darter
Channel darter
Gilt darter

Endangered Reptiles:

Bog turtle
Massasauga rattlesnake
Kirtland’s snake

Threatened Reptiles:

Red-bellied turtle
Rough green snake

Endangered Amphibians:

New Jersey chorus frog
Coastal plain leopard frog
Eastern mud salamander

Threatened Amphibians:

Green salamander

Endangered Mussels:

Northern riffleshell
Clubshell

(No aquatic insects are currently listed)

Candidate Species

Candidate species are those that may not be on the “sick list” yet, but have suspicious “symptoms” that require watchfulness and caution. There are bag and possession limits that restrict or prohibit their taking.

Candidate Fish: Silver lamprey, spotted gar, longnose gar, bowfin, skipjack herring, hickory shad, goldeye, mooneye, silver chub, hornyhead chub, bridle shiner, ghost shiner, blackchin shiner, redbfin shiner, blue sucker, smallmouth buffalo, spotted sucker, river herring, black bullhead, tadpole madtom, bridled madtom, banded sunfish, warmouth, longear sunfish, Iowa darter, Potomac sculpin, spoonhead sculpin, deepwater sculpin.

Candidate Reptiles: Blanding’s turtle, broad-headed skink, timber rattlesnake. No amphibians are currently listed as candidate species.—LS.



Timber rattlesnake,
candidate



Should We Fish for Trout During the Spawn? by Mark A. Nale

I cast my gold spinner between two rhododendron branches and let it sink into the swirling water near the base of a decaying stump. Frank and I both saw the subsurface flash at the same time, and from its width, we knew that this was no 10-incher! I set the hook and my 4 1/2-foot spinning rod nearly bent double. A few moments later, I was measuring a heavy 16 1/2-inch wild brown trout as she lay in the leaf-littered shallows at the edge of the mountain pool. The big brown was already swimming back into its watery world as Frank offered his congratulations. It was a great morning to be trout fishing.

Frank and I had been sharing the crisp, late-October air and each other's company along this stocked Centre County stream for nearly three hours when the big brown hit. We had been catching trout at a lively pace, but we also took time to soak up the richness of the autumn day. We enjoyed the sight of golden fern fronds and rusty-red oak leaves almost as much as the feel of trout tugging at the end of our lines.

I had recorded 16 trout in my vest-pocket notebook: 4 stocked browns, 10 wild browns, and 2 native brookies. Frank had released 20. Although sometimes disappointed, we had expected this kind of fishing when we had planned the outing the evening before. The rain-swollen stream, coupled with pre-spawning behavior, meant that trout should have been out and on the move.

Although it had been a little early, we had seen one female in the 15-inch class working a redd. She had been uninterested in our offerings. We had anticipated that trout would be out looking for mates or a spawning site, and therefore available. They hadn't let us down.

I certainly enjoy my fall outings; in fact, it's my favorite time of the year to fish for trout. Temperatures are pleasant, the trout are usually cooperative, and the colorful scenery is unmatched!

Not all anglers share my enjoyment, and some would like to end it. A certain segment believes that fishing for spawning trout gives anglers an unfair advantage, disrupts spawning, and hurts the wild trout population.

Current regulations

Current Pennsylvania regulations on "Approved Trout Waters" permit fishing after Labor Day. Anglers can fish streams, such as Blair County's Bald Eagle Creek or Venango County's Sugar Creek, with a reduced creel limit of three trout per day between September 2 and the end of February. Many of these stocked streams also have good populations of wild trout, and some anglers think that these streams should be closed during the spawning period, which usually occurs during October and November. To make matters worse, in these same anglers' eyes,

important wild trout fisheries such as Letort Spring Run, Gray's Run, Penns Creek, and Fishing Creek, are open to fall fishing under catch-and-release regulations. These streams are examples of specially regulated waters under the Heritage Trout, Selective Harvest, Catch and Release, and Trophy Trout programs, respectively.

I'm not sure of the complainers' exact wishes, but they range from the cessation of all fishing on streams with wild trout from Labor Day until the season opener to just a trout fishing hiatus during October and November. Let's look at their concerns.

The "unfair advantage"?

The first concern is the "unfair advantage." There is no doubt that in the fall, trout that are normally only night feeders become more available to anglers, but catching them is still no pushover. About 20 years of autumn angling have given me lots of opportunities to demonstrate that. Big trout that leave the safety of their tangled lairs are very cautious. The trout preoccupied with redd-building are not easy to catch, either. Even when fishing during the height of the spawn, fewer than one in 20 trout that I catch will actually be on or near a redd. I'd rather hit a stream just before the spawn than during it.

Even if we scrutinize the fact that some trout are catchable during the fall because they are out rather than in hiding, does that constitute an unfair advantage? Night fishing, or fishing during a large mayfly hatch such as the Green Drake hatch on Penns Creek, also lets one fish over trout that might otherwise be "unavailable."

Is that taking unfair advantage of the fish? A spring shower often muddies streams and puts trout on the feed. Is fishing after a rain taking "unfair advantage?"

We have an entire fishery, Lake Erie's steelhead, which is (at least the stream part) based entirely on fishing for them during their spawning migration. Is this taking advantage of the trout?

Before I leave this topic, another reason I've heard to close the streams in the fall is that slob fishermen snag trout while they are on their redds. This, of course, is already illegal. Another regulation won't stop a lawbreaker.

Fall fishing disrupts spawning?

Again, there is no doubt that being caught disrupts a trout's life and causes stress, but does being caught in the fall disrupt the spawning process to the point of stopping it? I don't believe so. If you've ever taken time to observe the spawning process, you'd know that the entire process is one of constant

disruption. The female attempts to dig a redd while the male chases away one suitor after another. In this case, being caught and released causes about as much disruption as a heron wading by. At most, a few hours later, the trout will be back at the business of reproduction.

Redds are trampled?

Careless anglers might step on a redd and crush the trout eggs—true. Careful anglers can also spot redds and avoid them. Trout fry in some freestone streams don't leave their nest until March. To remove all possibility of a redd being damaged, streams would

need to be closed for five months at a great loss of fishing opportunities. Is this necessary when one fall or winter flood can do more damage than a hundred wading anglers?

The trout population is harmed?

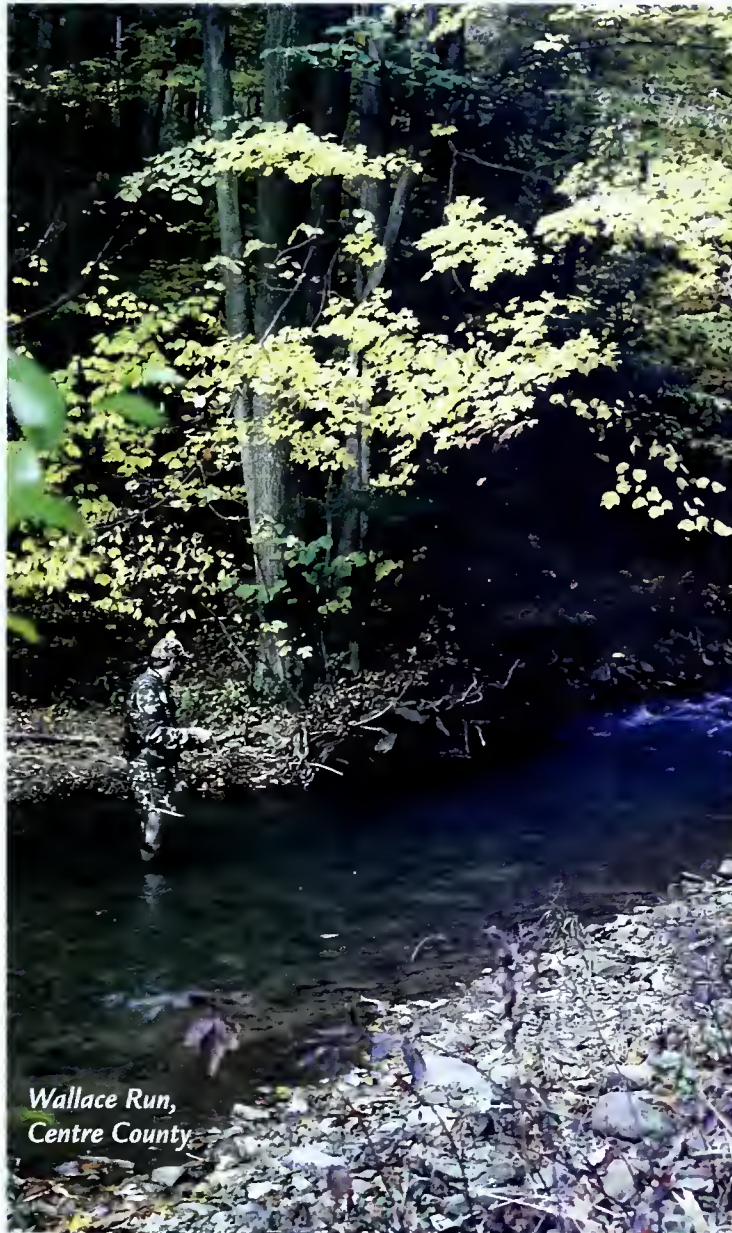
Fall fishing harms trout populations. Trout are stressed, aquatic insects are trampled, some trout are creeled, and others die from hooking mortality, but the same thing happens during any other season. Most of the wild trout streams that I fish are doing fine with fall angling permitted. Population fluctuations seem to be caused by droughts and floods, not autumn fishing.

Water temperature has a direct correlation to trout mortality and stress. Research has shown that being caught and released from the 45-degree water of November is a lot less stressful than being caught when the water hits 70 during July or August. In fact, I avoid fishing in warm water for that reason.

Few people are as concerned about wild trout as I am. If I believed that I were doing serious harm to wild trout by fishing during the fall and carefully releasing my catch, I'd gladly forego

autumn angling. After all, I'd be hurting myself by continuing. As for streams where up to three trout may be kept each day, a trout creeled in October doesn't get to spawn, but neither does the trout that was creeled in May. Is one worse than the other?

If it comes down to a personal decision, fine. Any angler can choose to hang up the fishing rods on Labor Day if that angler doesn't wish to partake in autumn fishing. Unless it can be shown that fishing in the fall is more harmful to wild trout than fishing any other time of the year, let's leave the regulations well enough alone and not infringe on the enjoyment of others. Time that we can spend astream is short enough without eliminating half the year with a well-meant, but unnecessary attempt to protect wild trout.



Wallace Run,
Centre County



Mayflies



Hexagenia limbata,
Michigan caddis

by Karl Blankenship

For the last four years, Greg Hoover has been traveling through Pennsylvania, visiting lakes, looking under leaves behind filling stations, and hanging insect-luring white sheets over streams during the wee hours of the morning.

The object of his search is the insect order Ephemeroptera—mayflies. Since 1993, he has visited about 450 sites and collected 17,000 specimens from warm-water streams, coldwater streams, intermittent streams, major rivers—you name it—as part of the first-ever attempt to quantify the diversity and distribution of mayflies in Pennsylvania.

Hoover, an entomologist with Penn State Cooperative Extension, takes each specimen back to his lab for identification. It's a big job: Of roughly 700 species of mayflies in North America, about a third, or roughly 230 species, occur in Pennsylvania.

The high number reflects Pennsylvania's unique ecological position. It is on the northern fringe of the range for many southern mayfly species, and the southern edge of the range for many northern species. "We have a real melting-pot state," Hoover says.

His research is part of an effort by the

Fish and Boat Commission to inventory the four major groups of aquatic insects in the state—mayflies, caddisflies, stoneflies and crane flies. The study is supported by the Wild Resource Conservation Fund, which raises money for scientific and educational projects related to Pennsylvania's nongame wildlife through voluntary checkoffs on the state income tax form and the sale of special license plates.

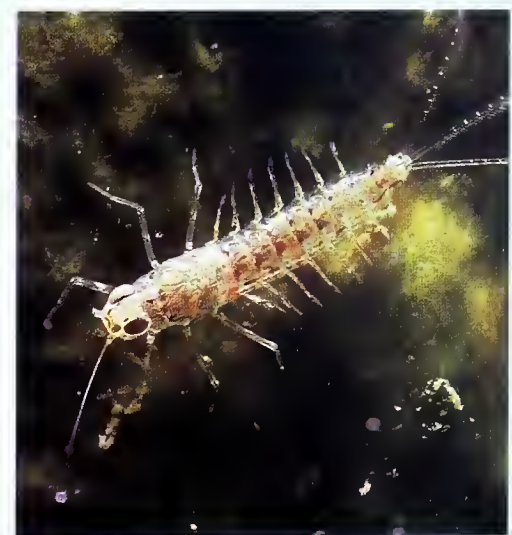
Andrew Shiels, the Commission's Nongame and Endangered Species Unit Leader, calls this work "baseline basics." With statewide inventories, people in the future will be able to track how these populations, which are critical to the aquatic food chain, are faring in the face of environmental changes.

More immediately, all the insect information is placed into a computerized mapping system, along with information about water quality and fish diversity. By viewing all the information together, Commission biologists will be better able to identify truly outstanding streams in the state.

After all, these insects perform critical ecological tasks. They consume algae, or break apart detritus in the stream, or burrow into the sediment, eating tiny particles of plants as they grow into something large enough for fish and other stream dwellers to take an interest in.

"Basically, you're talking about the bottom part of the food chain," Shiels says. "They're very important biologically because the different species do different things: Shredding, breaking down organic matter into forms other creatures can use."

No insects often mean no fish. That became apparent in the spring of 1997 when the Commission didn't stock a portion of the Little Juniata River with brown trout, as it had every year since the



Centropilum nymph, red quill

early 1970s, because a mysterious pollutant wiped out the mayflies and other aquatic insects. The area had been popular with many fly fishermen.

Of the major aquatic insects, mayflies are the most appreciated by anglers, especially fly fishermen. Historically, mayflies and fly fishing have been so closely linked that it is difficult to imagine one without the other.



Stenonema modestum nymph, pale olive Cahill

Because of this connection, mayflies have a reputation for being related to clean, high-quality waterways. And while this is true to a large extent, Hoover notes there is great variety among mayfly species. Some are far more tolerant of pollution than others. Eventually, he wants to build on his inventory work to correlate more precisely specific species of mayflies with different levels of water quality and various kinds of disturbances. "There is a link to water quality when you see certain species of mayflies," Hoover says.

In fact, Hoover was struck during his inventory work by the comeback mayflies have made in the state's largest drainage. "It's amazing the diversity and abundance of mayfly fauna in the Susquehanna and in the Juniata," Hoover says. "It looks better now than it did when I was a kid."

It has gotten to the point that some people, who don't appreciate the possibility of added protein in their drinks, have complained about the swarms of insects that sometimes blanket Harrisburg's City Island, located in the middle of the Susquehanna,

during minor-league baseball games. In some cases, the heavy swarms have caused game delays.

Hoover regularly advises people that this is actually great news. "The fact they are so abundant and increasing in number is good news for all of us because it means the Susquehanna is cleaning up."

These swarms are actually important to the insects. Large clouds of males fill

the sky, waiting to mate, in flight, with any females that enter the swarm. Eggs are laid within the hour, and the insects have completed the primary function of their brief, adult life stage.

Their adult life is so short that their insect order, Ephemeroptera, means "living for a day." That's not quite accurate. Some species don't live even that long, while a few persevere for several days.

Eggs usually hatch into water-dwelling larvae within a few weeks. Most of their life—typically a year for most mayfly species—is spent as larvae, consuming and converting algae and other material into

food for other stream dwellers.

Eventually, they leave the stream to begin their brief stint as a winged insect. At this stage, mayflies are truly unique. They emerge from the water not as adults, but as subadults, or subimagos, which are covered with tiny hairs. Depending on the species, the insects remain in that stage anywhere from several hours to a few days before molting into a true adult.

"Mayflies are the only group of insects that molts one additional time once they are winged," Hoover says. "There is no other insect on planet Earth that does that."

That distinction offers fly fishermen added variety for patterns when making flies. They can pattern them after the grayish winged subimagos, called "duns," or the clear-winged adults, called "spinners."

The mass emergences of mayflies from streams are a big draw for trout and other fish, which find that the insects are easy pickings as they make their way to the water's surface to take flight.

These emergences are also big draws for fly fishermen. In fact, some come from all over the United States to see the emergence of one large mayfly species, the green drake, on productive streams such as Penns, Fishing and Pine creeks. Green drakes can run an inch or more in length, and with their white underbellies, have been described as resembling a snow squall as swarms take flight upstream to lay eggs.

"There is a lot of tourism associated with just that one species," Hoover says, who is co-author of a fly-fishing book, *Great Rivers, Great Hatches* (see page 54).

Mayflies don't emerge only during May. Heavy emergences continue from spring through fall. But some species continue to emerge throughout the year. "I've collected adult mayflies in Pennsylvania 11 of the 12 months of the year," Hoover says.

Despite spending all that time around streams and being an avid fly fisherman, Hoover says he rarely fished while in the field to hunt mayflies these last four years—once to teach an assistant how to fly fish, and once with another unpaid assistant who was helping make collections. "Those," says Hoover, "are the only two times in the past four years, as 'sad' as that sounds."

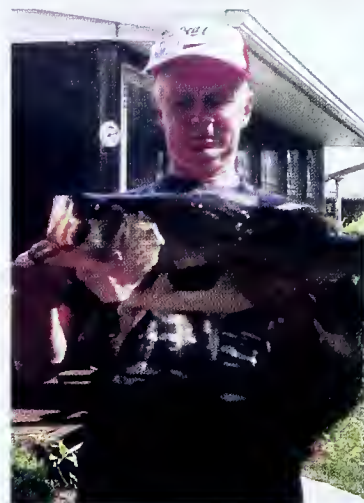


Eurylophella temporalis, blue-winged yellow quill

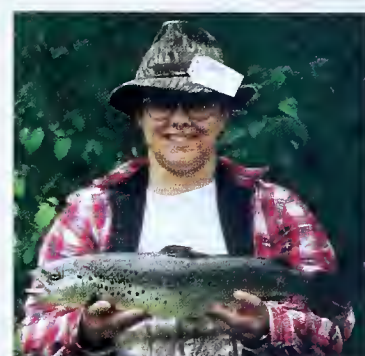
Cast & Caught



New Kensington resident Andrew Bindas hooked these smallmouth bass while fishing at the Freeport Dam on the Allegheny River. The largest fish was 21 1/2 inches long and weighed 5 pounds.



James Hammer, Emmaus, earned a Senior Angler Award for this large-mouth bass. The fish, caught in Peck's Pond, measured 22 1/2 inches long and weighed 6 pounds, 15 ounces.



Linda Long shows off her best brown trout ever, a 20-incher that was a little over three pounds. Linda caught the fish last May at Muddy Run Lake, Lancaster County, and she caught the trout on a minnow.



Tim Burkett and his 8-year-old son Matthew did well fishing in Wills Creek, Bedford County. Tim caught a 19 1/2-inch brown trout, and Matthew caught an 18 1/2-inch rainbow trout.



Marty Gudenius, Baltimore, earned a Senior Angler Award for this opening day rainbow trout he hooked while fishing Scotland Pond, Franklin County. The fish weighed 6 pounds, 11 ounces and measured 24 inches long. Gudenius fooled the fish with a jig.



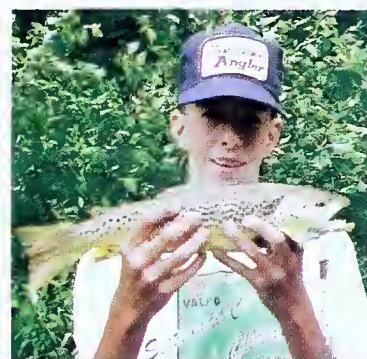
Frank Hettler was fishing at night on Lake Nockamixon in Nockamixon State Park when this channel catfish took his bait. The 31-inch fish was quickly photographed and released to fight again.



George Marsico, Aspinwall, caught this walleye on a jig-and-minnow while fishing the Ohio River near the mouth of Sewickley Creek. The fish, caught on 6-pound test, weighed 11 pounds, 4 ounces and was 17 1/2 inches long.



Easton resident Ken Koury was fishing on Lake Wallenpaupack when he hooked this hybrid striped bass. The fish weighed 11 pounds, 15 ounces and measured 28 inches long.



Paul Conedera, Valparaiso, IN, hooked this brown trout while on a fishing trip in July. The 13-year-old angler was fishing the Youghiogheny River at Ohiopyle State Park when he caught the fish. Weight and length are unknown.



Justin Noll, Mifflinburg, caught this 20-inch brown trout on a minnow in the North Branch of Buffalo Creek last October. Nice fish, Justin!



Bob Magliocca, Carnegie, caught this 18 1/2-inch brook trout. The fish weighed 3 1/2 pounds with a girth of 11 1/2 inches. Nice fish, Bob!



Coatesville resident Lisa Suckstorf was fishing on Hopewell Lake, French Creek State Park, Berks County, when she caught these crappies and yellow perch. Nice job, Lisa!

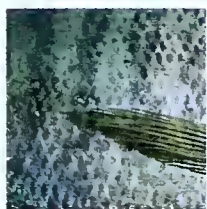
SMART

Angler's Notebook

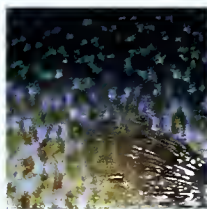
by Carl Richardson

FISH COLORS

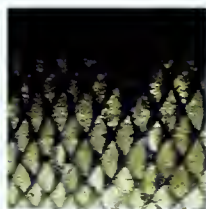
Pennsylvania's fish aren't nearly as colorful as some you might find hanging out on a coral reef somewhere. Yet, in their own right, many of our game fish and forage fish are very colorful. Have you ever seen a male brook trout in the fall? The males of all salmon that spawn in the fall become very colorful, and nothing compares to the colors of a brook trout. By comparison, the colors of fall leaves look pale. How about a bluegill or a largemouth bass? Have you ever noticed how brilliantly shiny an American shad is? What makes these fish, or any fish, colorful?



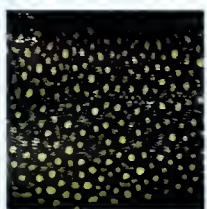
bluegill



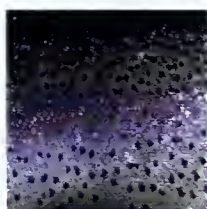
pumpkinseed



carp



brook trout



rainbow trout



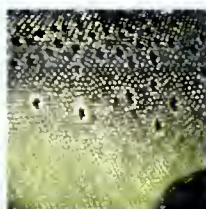
American shad



channel catfish



smallmouth bass



brown trout

What makes the colors?

Generally, colors are the result of reflected or absorbed light. Fish and other animals have special organs in the skin that produce color-causing chemicals. Some chemicals reflect light. Others absorb it, and we see colors. The iridescent look of an American shad or a shiner comes from chemicals produced by cells called *iridocytes* in the skin.

The colors of a bluegill come from cells called *chromatophores*. These are the cells that cause true colors. Each chemi-



cal results in a specific color. Chromatophores, depending on the species, produce a mixture of chemicals. This process is much like mixing paint at the hardware store.

What influences color?

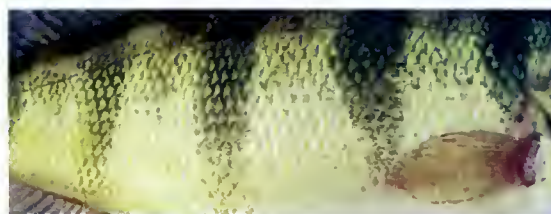


Iowa darter, *Etheostoma exile*

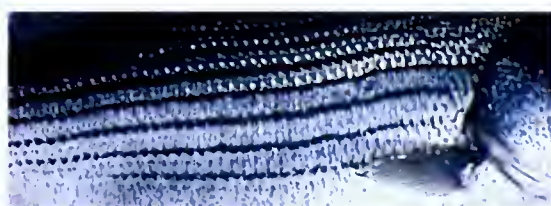
Spawning males are usually very bright and colorful. The spawning process triggers the chromatophores and puts them in high gear. Fish under stress are often pale and discolored. Stressed fish put their energy into more important functions.

Color patterns

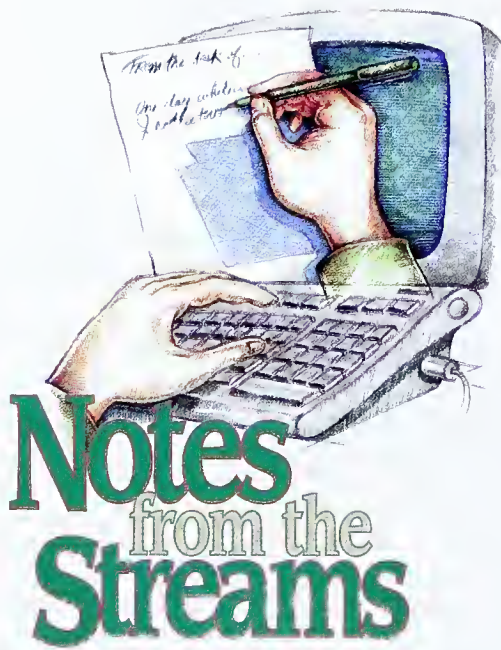
Fish tend to blend in with their surroundings. We all know that as camouflage. Fish that live in weeds generally have vertical bars or stripes. The ones that live in open water have horizontal stripes or countershading (where the belly is lighter than the back).



yellow perch—vertical stripes



striped bass—horizontal stripes



Low flow award

Over the years, I have seen quite a few situations where our co-op nurseries have had to raise their fish on very little water. However, I believe the Perry Township Sportsmen in Fayette County have gotten by on the least amount of water. On November 1 last year, I visited their nursery along with Cecil Houser, Co-op Nursery Unit Manager. Their water flow was just a half-gallon per minute. However, they were able to keep their 1,000 trout alive on this flow along with the use of a 1/3hp air blower. Fortunately, about 10 days later normal water flows returned. Tim Gilmore, the club nursery manager, and other members did an excellent job with their fish under extremely poor conditions to rear trout. Keep up the good work!—Commissioner Donald K. Anderson.

Engineer swims toward New Jersey

Area Fisheries Managers often have to reach pretty deep into their bag of tools when it comes to unanticipated encounters with inhabitants of the Commonwealth's waterways. Take the case of AFM Dave Arnold one night last May. He and his crew were setting nets at Smithfield Beach on the Delaware River upstream of Stroudsburg to capture adult American shad. The purpose of the netting was to collect spawn for restocking the Susquehanna and Lehigh rivers as part of restoration efforts. As early evening began to fade, the crew noticed a rather large beaver feeding on shoreline vegetation about 75 feet downstream from the processing table, tubs and boats. The crew gave little thought to the presence of one of nature's natural engineers. However, as the beaver began to cruise the river, Arnold and his crew expressed concern

about the beaver's possibly swimming into the nets. They didn't relish the idea of having nets shredded, nor did they want to even think about untangling the mesh this furry rodent could create in short order. More than one fisheries worker pitched river stones in the general direction of the beaver in an attempt to scare him away from the nearby nets. Fortunately or unfortunately, no one hit the beaver, but all the commotion eventually resulted in it leaving the area. The last they saw of the beaver, it was swimming to the quieter New Jersey shore.—Richard A. Snyder, Chief, Fisheries Management Division.

Non-residents target Centre County

Talking to a local guide service along Penns Creek, it was interesting to learn of recent angler visits from Australia, Italy and England. However, none compares to an angler I witnessed during Labor Day



weekend at Colyer Lake. A flamingo, believed to be a variety indigenous to Chile, contentedly fished a shallow shoreline. To date, no zoos have reported any such creatures missing.—WCO Brian Burger, Centre County.

Discount for subscribers?

After filling out a citation for a person fishing without a license, I was asked the following question: "Do I get a discount on my fine since I subscribe to *Pennsylvania Angler & Boater*?" I explained that while there were many benefits to subscribing to and reading the *Angler*, discounts on fines did not happen to be one of them.—WCO David Keller, Adams/northern York counties.

Recipe for disaster

It seemed like a straight-forward, albeit unusual, request: A reporter wanted a recipe for carp. Although carp were originally introduced into the United States as a food fish, most anglers today wouldn't rank the carp high on the list of favored delicacies, and I wasn't sure there would be much I could relay to the caller. I was delighted, though, when I came upon a sheet simply labeled "carp" with a list of ingredients attached. Excited, I started recounting my find to the reporter: mix 1 cup flour, 1 cup yellow cornmeal, 1 teaspoon sugar, 1/4 cup grated cheese, 1 onion... I stopped short, though, when I came across the next ingredient—cosmetic cotton-ball puffs? Seems I was cooking up a batch of industrial strength doughball baits. Carp may like them, but personally, they give me a bad case of cottonmouth.—Dan Tredinnick, Press Secretary.

Property damage?

Being the Commission's boating accident review officer is a constant study in human nature. Pennsylvania's boating accident reports detail just about everything that can go wrong on the water. The gamut of stories ranges from out and out horror to, well... humor. Recently I received a report in which two anglers had capsized their boat on a windy day on the Susquehanna River. There were no injuries because the two people on board were smart enough to wear life jackets. However, when I got to the report's property damage section, I thought I had found a mistake. The operator listed \$250 damage to the 14-foot fishing boat and motor that had capsized, and over \$3,000 worth of damage to "other property." Thinking he had reversed the figures, I made a call to the operator's home. He wasn't there but the nice lady who answered said that her husband and his buddy had lost over \$4,500 worth of fishing equipment. They had listed only \$3,000 so it would be more believable. She said that her husband's fishing buddy had so much tackle that there wasn't even room for a cooler on board. Apparently more than 15 fishing rods and scads of tackle boxes went to Davy Jones' locker. I laughed and told her I was jealous. I'm sure the local smallmouth population is having fun checking out all the latest gear displayed on the bottom of the river.—Dan Martin, Boating Accident Review Officer.



Good thing we checked

While WCO Terry Deibler and I were inspecting a proposed stream encroachment site in Michaux State Forest, we came across a hunter who was pursuing white-tail deer with a long bow. Admiring the craftsmanship of the homemade bow, I asked the hunter if I could see what kind of arrows he was using. After a frantic search, the hunter disgustedly said, "I left them in the truck." I'm sure this was one hunter who did not mind being checked by an officer, as his truck was close by. —WCO Craig Garman, Cumberland County.

First fish

On the opening day of the 1996 trout season, I was on field training in Venango County with WCO Robert Steiner. We knew the night before that the weather was not going to be cooperative, but we decided to stake out a section of trout stream that WCO Steiner had heard was being fished regularly preseason. At 0-DARK-500 we crept into the woods and found a good observation point and waited for first light. Dawn broke, and with it came buckets of rain. As we watched, several people arrived and prepared to fish, but not one person even looked interested in putting a line into the water. Finally, at 7:45 the rain slowed and we walked down to the stream. A father and his young son were preparing to fish just above a small dam. WCO Steiner looked below the dam and saw about 30 trout holding in the pool, so he advised the young man to cast there first. At precisely 8:00, the youngster cast his line into the pool and within 30 seconds he caught the first trout of his life. We may not have caught any "fish" that day, but it sure was fun watching that young man catch his! —WCO Robert Croll, Southeast Region.

Susquehanna alligators?

The Long Level area of the Susquehanna River in York County is a very popular place for summer recreation—hundreds of boats, people fishing from shore, picnics, and sunbathers. A call from 911 described an alligator at the picnic area and asked for someone to respond. County animal control officers, the Game Commission, local police, and the Fish and Boat Commission all were called. A two-foot alligator was along the shore resting with its

mouth open, and about 100 people stood in a semi-circle watching it. The local township police officer was the first to approach this threatening creature. The entire crowd was silent as he slowly and stealthily crept closer until he was within arm's reach. He hesitated briefly, and then with the quickness of a cat, lunged and grabbed the critter by the snout. It didn't put up much of a fight, however, because



it was a mounted specimen. Everyone momentarily sighed, then began laughing hysterically. Where else can you go to have this much fun? —WCO Lee Creyer, southern York County.

Three down, 10 to go?

Each spring, during one of our "inseason" trout stockings on the Lehigh River (along Lackawanna and Monroe counties), students from the Pocono Mountain School District's Environmental Activities Club join me to clean up litter and assist with the stocking.

This past May, about 12 students, accompanied by the club advisor Tim Best and biology teacher Mike Blough (who is also a DWCO), picked up litter along a two-mile section of the river before the stocking truck arrived. The students eagerly traded their garbage bags for buckets.

As we pulled into our eighth stop, I noticed an older gentleman who was excitedly attempting to attach a hook to his line. As the truck came to a stop about 30 yards past him, he picked up his creel and ran to the back of the truck, where he again was attempting to attach a hook. One of the student helpers carried a bucket of trout past him and went to the river's edge where the fisherman had been. The excited fisherman grabbed his gear, and ran after the student. My helper set the bucket on the bank and took the lid off. As he looked over the river bank for a safe place to descend, the fisherman reached into the bucket, scooped out two

trout, and dropped them on the ground!

As the fisherman stooped over to put the fish in his creel, I stepped up behind him, tapped him on the shoulder, and asked him what he was doing. My student helper was horrified at this turn of events. I admonished the fisherman for his conduct and the example he was setting before this young sportsman, advising him, "This is not how we stock trout." I explained the violation of "improper stocking of Commission fish," which he would be charged with. Having no explanation for his behavior, he opted to settle this violation in the field.

The fisherman related to me that he had been previously cited by WCO Sally Corl for a littering violation in Susquehanna County about a year before. In November of this year, I was notified by WCO Larry Bundy of Wyoming County that this same 81-year-old fisherman was cited by him for keeping more than his limit of trout.

There are 13 waterways conservation officers covering the Northeast Region. Do you think he is trying to meet us all? —WCO William Carey, south Wallenpaupack.

Wrong shoes for the occasion

DWCO Kevin Cummings was checking fishermen at Hereford Manor Lake when he saw what appeared to be an undersized largemouth bass on an angler's stringer. DWCO Cummings asked the man if he was aware that he was fishing a Big Bass Lake and that bass had to be a minimum of 15 inches long. The man said he knew of the regulations and that he had measured the bass with his foot. When asked what he meant, the man said that he had measured his shoe and it was 14 inches long, so he put his foot on the bass and part of the tail and head extended past either end of his shoe, so he knew it was at least 15 inches long. DWCO Cummings gave him a metal tape measure and told him to measure the bass again. After several attempts, the longest length he could come up with was 13 inches. DWCO Cummings told the man he had a problem, to which the angler replied, "I know what the problem is—I wore the wrong pair of shoes today." —WCO Greg Jacobs, Beaver County.

The Tri-Point Green Drake

by Chauncy K. Lively

Green Drake! The mere mention of those two words evokes magic in the hearts and minds of countless Pennsylvania fly fishermen. Vacations are planned around the expected appearance of the big mayflies, and once advance arrangements have been made, there is generally much nervous nail-biting lest unusual weather renders the hatch too early or too late. Those fortunate souls with flexibility in their workplace sit expectantly by the phone awaiting word from a buddy on the scene that “the Green Drakes are on!”

One of our largest mayflies, *Ephemera guttulata* is well-distributed throughout most, but not all, trout streams in the eastern United States. With a wing height and body length often reaching one inch, it is a succulent mouthful for trout. Its size and numbers draw the attention of some of the largest trout in the stream, which surface-feed with noisy abandon. It is a behavior completely out of character for large, solitary brown trout, which normally remain hidden under the likes of a log jam or undercut bank and shun daylight activity.

As with several well-known flies in the eastern U.S., such as the March Brown, we borrowed the Green Drake’s name from the British fly of the same name. Although they bear a superficial resemblance in size and markings, the two flies imitate distinctly different species. The British version is the *Ephemera danica*.

On seeing the Green Drake for the first time, and expecting to see a distinctly green mayfly, many have questioned why it is so named. True, if you stretched your imagination, you might interpret the yellow splotches on the wings as *greenish-yellow*. Otherwise, there is little green to be found. Actually, the British Green Drake was not named for its color but in reference to the posture of its tails, which was said to resemble that of the male mallard, otherwise known as the green drake. Good, solid logic!

The Green Drake hatch carries with it some enigmatic aspects that several generations of anglers have failed to decipher. Penn’s Creek produces some of the heaviest hatches of *guttulata* in Pennsylvania; indeed, some would say no other stream in the eastern U.S. can match it. Yet, there are times on Penn’s when the



big flies resemble a snowstorm, and the trout regard the hatch with a ho-hum attitude. On the other hand, in the free-stone streams of the northern-tier counties, the hatch is generally sparser, but every trout seems to be eager to feast on every fly in sight.

Trout in Penn’s Creek are not always contrary when the Green Drake is emerging. If you can manage to fish several days during the hatch, you are bound to hit one or more days of fabulous fishing. But even when the trout are uncooperative, it’s worth the trip to Penn’s just to experience the hatch.

Typical of *Ephemera* nymphs, those of the Green Drake are burrowing nymphs that require stable silt to fashion their U-shaped burrows. Vincent Marinaro wrote of attempts made to transplant Green Drakes to Cumberland Valley streams, notably, the Letort. But the effort failed, and it was concluded the streams in the locale lacked the distinctive habitat required. However, during the 1970s the late John Snider, of Chambersburg, showed me several Green Drake duns and spinners he collected on one of the branches of the Conococheague, making it evident they are not totally absent in southcentral Pennsylvania.

On the southernmost streams in its range, the Green Drake generally begins to appear around the third week of May

and the hatch reaches its peak around Memorial Day. On the streams of the northern tier counties, it appears one to two weeks later and extends well into June.

The tri-point style of dry fly is well-adapted to large patterns like the Green Drake. The hair legs provide excellent buoyancy and require little preening following bouts with trout. Trout react to the big duns in various ways at different times. In the early stages of the hatch they sometimes act wary of the naturals. It’s almost as if they are incredulous that such flies could be real. But after they sample a few and find them to their liking, the trout switch into high gear and often a feeding frenzy follows.

There are always certain individual trout, usually browns, that exhibit an extreme wariness and act suspicious of even the naturals. I remember a big brown in the East Branch of Tionesta Creek that drifted under every Green Drake dun, refusing it until it fluttered. It wasn’t until I twitched my own fly when he nailed it in a furious flurry.

Fishing to the Green Drake is always an exhilarating experience, win or lose. The possibility of taking one of the stream’s legendary giants is itself enough to keep the adrenaline rushing. Making up a supply of these flies is a terrific wintertime project!

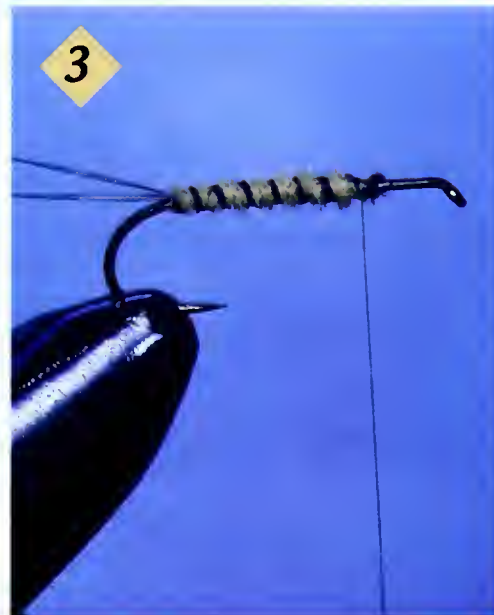




1. Tie in the thread 1/4-inch behind the eye and wind back to the bend. Tie in the tails with three turns at the bend and separate into two pairs. Wind between the pairs to spread the tails. Tie in the ribbing thread at the bend and wind over the waste ends of both ribbing and tails to the tie-in. Cut the excess.



2. Form a dubbing loop with the thread. Apply dubbing and twist the loop.



3. Wind the dubbing forward to form a tapered abdomen and tie off at the tie-in point. Trim the excess. Wind the ribbing counterclockwise. Tie off and trim the excess.

Dressing: Tri-Point Green Drake

Hook: Size 10 Tiemco TMC 5212 (2XL, 1XF) or equal.
Thread: Yellow 6/0 prewaxed.
Tails: Black microfibetts.
Ribbing: Black kevlar thread.
Body: Dubbing of pale-yellow fur or synthetic.
Wings/legs: Thin deer body hair.



4. For the wing and legs, cut a bunch of deer hair and even the tips. Tie it in, downwing style, and trim the butts to a bevel.



5. Draw the hair upright, winding behind to hold. With a dubbing needle, separate the hair into three bunches and bind down a bunch on each side for legs. Then apply a drop of Flexament to the hair at the bases of the legs and wings.



6. Form another dubbing loop, apply fur and twist. Then wind the dubbing between, across and in front of the legs and wing. Tie off behind the eye and trim the excess. With needlenose pliers squeeze flat the bases of the legs and wing. Whip finish, lacquer the head and with black marker make several small, irregular marks on the thorax.

Writing Readers

The Fishing Trip

by Agnes Coyne Wiedmann

Dad always made a production out of the first fishing day of the year—Trout Fishing Opening Day! That was the day us kids looked forward to, and we prepared for it for weeks in advance. The memory of my first trout fishing day still stands out warmly in my mind.

Dad started talking about fishing around mid-March. He took me and my sisters down to the basement to check out the gear. While he got the fishing poles down from the rafters where they hung on the nails he had set for that purpose, I carefully extracted the tackle box from its place on the bottom shelf of the work bench.

"Agnes, get the 3-in-1 oil so we can lubricate the reels," he said.

I searched through the shelves on the wall, past the baby food jars full of nails of various sizes, nuts and bolts, plumbing washers, and electrical supplies, until my eyes came to rest on the can of oil. I stood on tiptoes so that I could reach it and removed it from the shelf. By the time I handed it to Dad, Karen and Meg had already unscrewed the casings from the fishing reels, exposing their innards. Dad applied a drop or two of oil to the mechanism of each reel. Then he tossed the line with a weight on the end a few times, reeling it in so that the oil was dispensed to the right areas.

Next, an inventory of the tackle box was made. We checked that we had plenty of small, barbed hooks for salmon eggs and larger ones for nightcrawlers. The supply of splitshot that was used as weights to hold the lines near the bottom of the stream was checked next. A hook remover was essential for removing the fish from the hook, as was the sharp knife to gut the fish. Dad told us, "One of the most important items is a nail clipper—an all-around handy gadget for cutting snags from the line."

Everything was cleaned up and carefully placed back in the tackle box. Then the box was closed and returned to the bottom shelf of the work bench.

A week before the event, Dad took Mom and us kids to the sporting goods store to shop. The first items on the list were fishing licenses for Mom and Dad. Mom complained about the personal information required: date of birth, weight and hair color. There was a bit of kibitzing over the color of Mom's hair.

"Your hair is brown, Honey, warm dark-brown," Dad kept insisting, remembering her pre-bleached color.

"Any fool can see that my hair is blonde. Now be quiet, Bill, and give the man the money for the licenses," Mom finally told him in exasperation.

And he did.

Dad, with Mom and us kids in tow, wandered around the fishing department picking up various essentials. We bought a jar of salmon eggs—the natural-colored ones. Then Dad picked out a net, waders for him and Mom (but not us kids), a fisherman's vest, a creel, and several interesting lures.

The night before opening day was my favorite time. That was nightcrawler catching time. Dad showed my sisters and me

nightcrawler a false sense of security and just as he relaxed, we quickly pulled him out of the hole. He was ours. We dumped him in the can with his buddies.

The next morning we rose at 5:00 a.m. to get to the stream and stake out our fishing spot by the 8:00 a.m. opening time. Mom made a thermos of coffee for her and Dad, and one of hot chocolate for us kids. It was cold when we arrived at the stream, so hot stuff was essential. Along the way Dad stopped at a donut store and bought a dozen to bring along. Breakfast wasn't eaten until we had chosen our spot by the stream.

The stream Dad chose meandered through a thoroughbred horse breeding farm. It was a beautiful setting. The fields were the intense green of early spring, dotted with pale-yellow sprouting willow trees. Pink magnolias and bright-yellow forsythia were plentiful, too. The air was fragrant with the odor of horses and earth mixed with magnolia and grass, and the stream added its fresh essence as well. In addition, there were the happy sounds of singing from many birds and the raucous

calls of ringneck pheasants. Occasionally the horses would playfully canter around the field, whinnying loudly in happy comradeship. We took it all in as we huddled at our stations, drinking hot chocolate and munching donuts.

At the stroke of 8:00 a.m., we threw our lines in the water and waited to catch that big one. It didn't take long for the first bite, and each of us soon had two fish.

In all, Mom had six trout including a palomino, and Dad had reeled in the limit of eight trout. What a great day!

That first trout fishing day was the start of a tradition that has been going on for more than 20 years. We've experienced all kinds of weather during that time, from cold, rainy and miserable to warm, sunny and gorgeous days. The fish have bitten our lines in great numbers and in no numbers.

But this year is special. This time my three little sons will join me and their Dad, Grandmom, Grandpop, aunts, uncles and cousins in continuing the tradition. Our group has grown from the original six to more than three times that number. So this trout season opening day—same place, same time, same ritual. I can't wait!



In 1970, the author (left), age 12, with Karen (middle), age 11, and Meg, age 9.

how to find and capture nightcrawlers. They hung out under the hedge at the edge of our property. We had to wait until after dark, so we needed flashlights. We searched with the flashlights until we caught one in the beam. Dad pointed out that each nightcrawler has a band about two-thirds to three-fourths of the way toward its rear. He instructed us to stoop down and lightly but firmly hold the fatter end below the band between our thumbs and forefingers, then gently tug. At this point, any worm worth hanging on a fishhook was expected to attempt to get away by plunging back into the hole from which it had just emerged. We thwarted the attempt by easing up just as the worm felt as if it would stretch apart. This gave the



Last-Chance Crappies



by Darl Black



I love Pennsylvania's colorful autumns and I hate the miserable winters. Squeezed between those two seasons is the last chance to enjoy open-water angling for another year.

With water temperatures dropping toward the freezing point, what can you expect to catch? How about crappies! Yes, crappies are very catchable in the cold water of pre-winter. For me, the panfish that signals the start of each new fishing season in the spring, also closes out the open-water season late in the fall.

No wimps here

There are, however, differences between April and December crappie fishing. One thing that immediately stands out is the number of anglers on the water. On a nice day in the spring, crappie anglers may be counted in the hundreds on some lakes. On a given day in the late fall, the number of fishermen angling for crappies can generally be counted on one hand.

By late fall some fishermen have transformed into hunters, and others let a little cold turn them into wimps. But the majority of anglers simply are not aware of the opportunities for excellent crappie catches in the pre-winter period.

Fortunately, when it comes to finding a coldwater crappie fishing partner, I do not have to look far. My wife is a certified crappie fishing fanatic. Consider one of our late-season outings last year.

"Shopping at the mall or crappies on Conneaut Lake?" was the question I posed to Marilyn on a Saturday morning when many Pennsylvanians were under the influence of "buck fever."

"Crappies," was the reply, just as I had expected.

Air temperature was in the upper 30s with a blue sky as we drove to the lake. A thin skim of ice covered a corner of the boat basin at the Commission access. One vehicle and trailer was parked in the lot.

We placed four rods in the boat along with a small tackle case of selected lures and a bucket of fathead minnows. For our personal comfort, storm suits covered layers of Thinsulate and Thermax clothing.

The first hour of fishing was under a sunny sky and a moderate breeze, but the crappies were uncooperative. We checked a couple of points and a mid-lake hump without receiving a strike.

At the next spot, my blade bait connected with something on an upward sweep. The resistance was minimal as I retrieved line. It turned out to be a small crappie snagged in the belly between the pelvic fins. The barbless treble hook was easily removed, leaving a minimal wound.

"Not what I call an aggressive feeding mood," I joked as we watched the released fish swim back to the depths. Marilyn switched to a marabou jig. I picked up a rod with a tightline rig, adding tail-hooked minnows to each Aberdeen hook. I positioned the boat for a drift along the east side of the hump. Twenty minutes and several drifts later we were still looking for an active school.

Then the northwest wind picked up. Fifteen minutes later the sun was completely obscured by dark, menacing clouds. We watched two other fishermen head toward the launch area.

*Let the panfish that signals the start of each new fishing season in the spring,
close out your open-water season now.*

Snow started to fall—the big, wet flakes that stick to everything. I looked at Marilyn for approval to turn the boat toward the access area.

“Not yet,” she replied. “I have a feeling the crappies are going to turn on with this weather change moving in.”

I zipped up my storm jacket all the way to the neck and pulled the wool cap over my ears.

The wind was making boat control very difficult. With the bow into the waves, I motored to the leeward side of the lake to an area we seldom fished. Watching the depthfinder closely, we cruised a deep breakline looking for signs of schooled crappies.

The flasher unit detected a hard-bottom ridge extending toward deep water. I let the boat drift as we jigged blade baits. As we approached a depth of 35 feet, a few fish showed up on the depthfinder. Within seconds Marilyn’s rod doubled over with a strike, followed immediately by a bow in my rod. With my free hand, I slipped a structure buoy over the side to mark the spot of active fish.

In about 15 minutes the boat looked like an iceberg and we could have passed for a pair of snowmen. But we had a dozen plump crappies in the livewell.

“Home for a fish dinner,” announced Marilyn.

Predictability

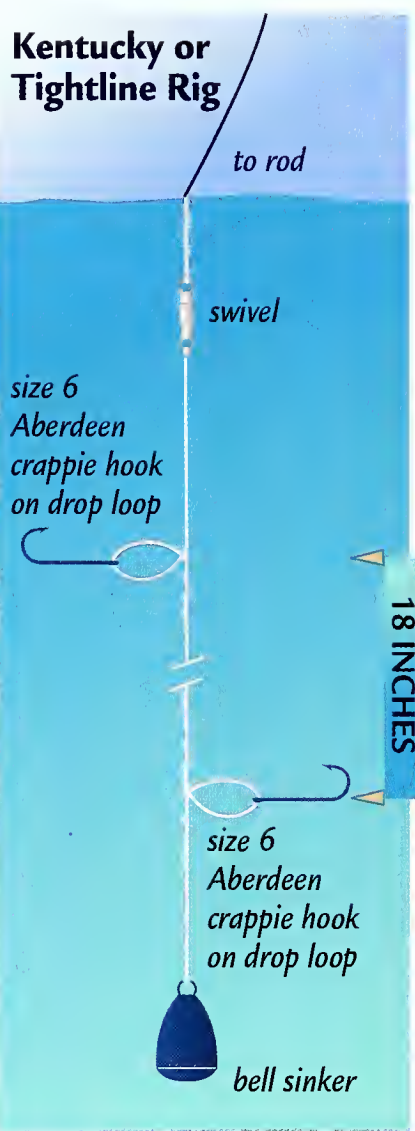
I have found the pre-winter crappie bite to be extremely reliable on lakes. The crappies school on the same structures at the same time every year.

Even though all crappies behave in a similar fashion during this period, the differences in lake characteristics make it seem as if the fish are doing different things. In deep lakes, it’s not unusual to find crappies in 25 to 40 feet of water in December. Heck, I’ve taken crappies as deep as 55 feet.

In shallower lakes that may reach a depth of only 25 feet, crappies will likely be found in 15 to 20 feet of water. The basic guideline to remember is that crappies go deeper in the late fall than any other time of the year.

As indicated by the depth ranges discussed, a boat is a necessity for late-fall crappies. Furthermore, any deepwater crappie fisherman will tell you a depthfinder is the most critical piece of equipment on the boat. The best rod-and-reel combo does not mean a thing without a reliable depthfinder and knowledge to interpret the readings. Either a liquid crystal unit or a classic flasher does the job as long as it has the capability to identify bottom composition changes, in addition to signaling baitfish schools and larger fish.

Where should you scan for crappies? In natural lakes, key areas to search include quick-breaking sections of main lake points, sharp breaks on mid-lake humps, rock outcroppings on deep flats, and bluff-like dropoffs near shore. But the above structures cannot be



found in smooth dishpan-bottom natural lakes. For these lakes it is important to identify the transition zone where firm bottom changes to soft muck—a job for a good depthfinder. Also, rockpiles or rises as small as one foot may attract crappies on dish-pan lakes.

On shallow manmade reservoirs, the hot area will be the submerged river or creek channel. Pay particular attention to old bridge pillars, sharp bends in the channel, channel edges with lots of stumps, a long point that reaches the channel lip, or the junction of a secondary creek. Brush piles or stump fields on deep flats hold crappies on these lakes, too. The middle and lower sections of shallow reservoirs will be more productive than the headwaters section.

If crappies are present in a steep-sided highland reservoir, they will most likely be found stacked along dropoffs and channel edges of secondary creek arms instead of the main river channel in the deepest part of the lake.

Knowing you are over fish by actually seeing them on the depthfinder goes a long way in eliminating unproductive structure that may otherwise look attractive to the angler. Active crappies will generally be just off the bottom and therefore easy to spot. Bottom-hugging crappies are usually inactive. Of course, the only way to know for sure if observed fish are actually crappies is to catch them.

What about weather and crappie activity in this pre-winter period? I’ve enjoyed success on calm days as well as breezy days. Sometimes it appears that the fish become more active

under partly sunny skies; other times overcast skies appear to trigger feeding. The most negative condition in my experience is the cloudless bluebird sky.

Presentations

Individual anglers may prefer slightly different lures or baits. Still, all agree the optimum presentation for deepwater crappies is straight down. Vertical fishing provides the most direct path to the fish. Casting, counting down and retrieving a bait is nonsense when faced with typical late-fall depths of 20 to 40 feet. Hovering in place with the electric motor, a slow, controlled drift, or anchoring keeps the boat positioned directly over the fish. Then the angler drops the lure straight down to contact crappies.

I’m a hard-metal advocate for late-fall crappies. Blade baits and jigging spoons are perfect deepwater lures, and are generally more productive on crappies than a jig or live bait in cold water.

Blade baits are thin, metal tear-drop-shaped lures with a weighted head and one or two treble hooks. These baits flash and vibrate wildly when pulled through the water, but drop quickly toward the bottom on a slack line. Lures in this group include the Cicada, Sonar, Silver Buddy, and Ripple Tail.

For deepwater crappies, I





Blade baits (top two), jigging spoons (second two), jigging Rapalas (two lures below nickel), and jigs (bottom three lures)

choose a $\frac{3}{8}$ -ounce or $\frac{1}{2}$ -ounce blade on 8- or 10-pound-test line with a medium-power spinning rod. Open the bail, let the blade bait drop to the bottom, engage the reel, and take up slack line, bringing the rod tip to within inches of the water's surface. Sweep the rod tip upward several inches, stop and then slowly drop the tip to the start position.

Joe Mayfield, an angler I encounter on area lakes in December, prefers a jigging spoon over the blade bait. He selects a $\frac{1}{2}$ -ounce or $\frac{3}{4}$ -ounce spoon and lowers it to the desired depth. Then he uses a light snapping of the rod tip to provide action to the lure. Crappies often strike the spoon with a ferocity that surprises even seasoned anglers.

Mayfield has as much confidence in the spoon as I do in the blade bait. He uses the spooning technique under calm and breezy conditions, choosing either a Kastmaster or Rattle Snake Spoon. The Hopkins Shorty and the Krocodile Spoon are other popular lures for this technique.

The Jigging Rapala is used for deepwater crappies by some anglers. I've never mastered the technique, because I rely on the blade bait. Mayfield likes a #W5 or #W7 Jigging Rapala in blue/chrome finish. He pops his rod tip to make the lure dart upward. Then on slack line, the lure swims downward like a pendulum.

When the crappies are particularly tight-lipped, Marilyn falls back to a hand-tied marabou jig. White marabou with a touch of Krystal Hair is the one she uses. The technique is simply to hold the jig inches off the bottom and very gingerly shake the rod tip—we call it “quivering.”


A similar technique is used by master crappie angler Rich Zaleski. However, Zaleski uses a subtle soft-plastic tail. His current favorite is the 2-inch Fin-S-Fish from Lunker City, which provides the perfect baitfish profile.

Even when crappies are inactive I stick with a blade bait, adjusting the upward sweep of the bait only to three or four inches instead of 12 to 15 inches. But when fishing brushpiles or areas with lots of stumps, I forego the blade for a technique that is less likely to snag the wood. Quivering a jig is one possibility. In place of a marabou jig I sometimes use a brightly painted leadhead tipped with a minnow, but no other dressing.

One of the best vertical techniques for inactive late-fall crappies is the Kentucky, or tightline, rig. This was demonstrated to me years ago by panfish expert Larry Ordway.

The rig is prepared as follows. A heavy bell sinker is tied to the end of the line. Ordway uses a $\frac{1}{2}$ -ounce or $\frac{3}{4}$ -ounce weight for calm conditions. About 10 inches above the sinker the first hook is attached with a dropper loop. Eighteen inches above that a second hook is positioned on a dropper loop. A third hook may be added farther up the line, but the lower two baits always seem to produce the fish. Several inches above the last hook, snip the line and tie on a small barrel swivel to help reduce line twist between the hooks and the main line. Hook minnows in the back between the dorsal fin and tail instead of in the lips.

The rig is fished straight down, with the heavy weight maintaining a tight line between bait and the rod tip. The sinker taps the bottom, telegraphing composition changes. We initially used the rig to help identify the transition from hard to soft bottom material. But it also works great for fishing around stumps.

Not much time left this year! Get out for those last-chance crappies before old man winter hardens the water. 

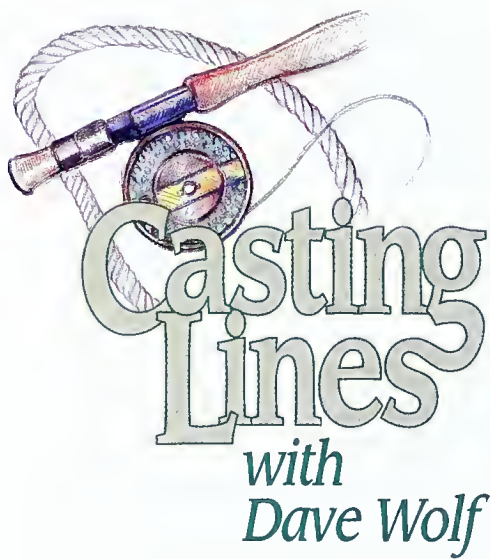
Releasing Late-Fall Crappies

When crappie fishing, I usually keep a few fish for a meal. However, I am selective in what I creel to clean. Ten inches is the minimum size I set voluntarily. For a couple of meals of fresh fish for two people, I rarely keep more than 15 crappies; I do not like crappie fillets that have been frozen.

On deepwater lakes during the late fall, releasing fish can present some problems. More so than other panfish at the same depth, crappies are susceptible to pressure changes when brought up from deep water. Crappies caught deeper than 25 feet may suffer from inflated swim bladders, which can prevent them from diving when released. Instead, they flounder on the surface to become seagull bait.

Here are some tips for successful release of crappies taken from deep water.

- Do not use a forceful hookset; a powerful hookset may put deepwater crappies into shock or cause their jaws to lock open.
- Bring crappies up slowly; reeling them in quickly increases the chance of swim bladder inflation.
- Before releasing a crappie, be sure the jaw is relaxed and the mouth is closed.
- If the released fish flounders on the surface, put it into your livewell to keep, even if it's smaller than you desire to clean.
- If you're consistently catching small crappies, then move. Check out other sites that may hold a school of larger crappies.



Casting Lines

with
Dave Wolf

The Trophy Musky

Winters have come quickly lately in the lives of Harry and Betty. It was just yesterday when Harry played shortstop on the local men's softball team, when he wasn't fishing, of course. Harry could not remember when he did not fish and Betty never knew Harry before he started fishing. They had been married for 55 years, and given to the truth, some of those years where good, some were not so good. But the lake served them both well; a place they fished together often. Harry's den was a testament to their success. On the paneled walls hung walleyes, bass, both largemouth and smallmouth, a dozen or so good trout and some very large muskies. In recent years, Harry, no longer able to afford the price of a taxidermist, had taken to fleshing out the heads of the muskies and attaching them to walnut-stained boards he had fashioned himself.

Times had changed, but Harry and Betty have lived in the same meager cottage at lakeside for 55 years, from the day he first carried her over the threshold. The lake had also changed some since then, the shoreline crowded with summer homes pushed nearly into the lake, docks dangling off back porches that carried many neighbors to their waiting boats. Harry didn't like it one bit. Betty was more tolerant, talking and socializing with the neighbors when she felt good, which was seldom. Harry and Betty knew that their quality of life was slipping away, and sometimes at night when the lights were out Harry prayed he would

go first; he would have a terrible time taking care of himself and he knew that he would miss Betty terribly. Perhaps it was a selfish prayer and Harry considered and reconsidered his request many times; but his prayer remained the same.

Winter was colder than he could remember, and on this late November morning the sleet pelted hard against the window. Harry had his tackle prepared the night before, and despite the weather he figured another musky would be moving, down in the deserted cove on the far side of the lake.

Around eight o'clock the next morning, he heard Betty coming down the steps; she always did, to prepare him breakfast. She wasn't going to argue with Harry despite her concern for him fishing on a day that made much younger men stay home.

Harry had dressed in heavy wool clothing, to keep the wind from biting through the skin. He knew that wool was heavy and absorbed water quickly. Perhaps it wasn't the best clothing to wear while fishing, but it had served him well over the years and Harry was not given to change. He ate breakfast, filled the thermos and grabbed two of his many rods and the worn metal tackle box.

He walked down the worn dirt path, rutted from his many trips to the johnboat that awaited him. The cold cut deeply and Harry knew that he would be sore and stiff when he was done. "Darn arthritis," he said aloud, as he struggled to upright the johnboat. He threw his tackle in and

pushed the boat over the gravel, the grinding sound that had worn the Army-green paint off the bottom, the sound that meant he was going fishing.

The oarlocks creaked as he fought the slapping wakes. *Thump, thump, thump*, a sound that was music to his ears, a sound that meant he was straining at the oars, and more importantly, he was going fishing. He would, for Betty's sake, stay within sight of the cabin, so that she may peer out the window from time to time to be sure that he was all right. Betty fished no more, but she knew the importance of being out there. Without it, Harry would have little to look forward to.

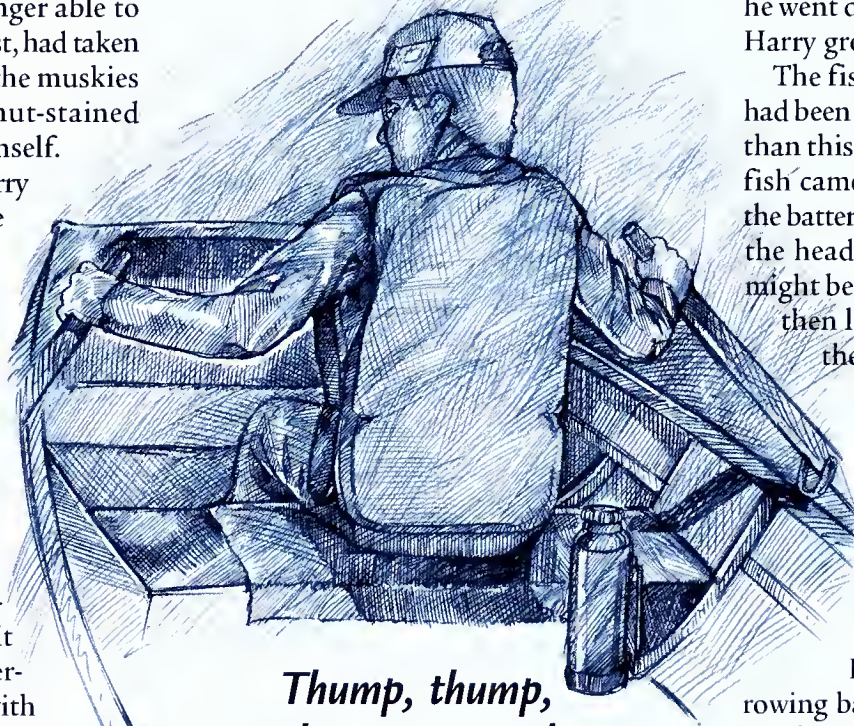
Harry maneuvered the boat around the bend that led to the cove. He set the oars and reached for the bait-casting rod. He smiled as he thumbed the old reel that had cost him five bucks. He had seen similar reels in the catalogs going for over two hundred. His handmade lure attached, Harry cast tight against the submerged log, into some 15 feet of water. He did not anchor, allowing the wind to move the boat about.

Harry fished for a half-hour without a strike, and then it came, a long, dark shadow from the depths of the cold, black waters of the lake. The fish came and came hard. He wanted the lure and he took it as an angry dog grabs a bone. Harry reared back and set the hook, not once or twice but three times as he always did. The fish jumped awkwardly and then again. Then he went deep. "Big fish, maybe my best," Harry groaned aloud.

The fish turned for the log, but Harry had been fighting muskies for a lot longer than this fish was old, and in the end the fish came to the net. Harry reached for the battered old ball bat. He would mount the head of the fish with the others; it might be his last. He raised the club and then lowered it, picked the fish from the water, admired it for a moment and then in his most unlikely move, gave the fish back to the lake. Why, he didn't know.

He figured he had taken enough muskies here, and it could be someone else's fish; someone else's fish of a lifetime.

Harry turned the boat and started rowing back to the cabin. The cold and the fish had tired him. Betty had been watching, and turned from the cabin window. She began brewing a fresh pot of coffee; she figured Harry might have a story to tell.



*Thump, thump,
thump, a sound
that was music
to his ears.*



Anglers Currents

Raystown Lake Receives Habitat Structure



Last September, more than 40 dedicated outdoor enthusiasts representing seven volunteer groups joined forces to construct and place fish habitat structure in Raystown Lake. The structures were designed by the Fish and Boat Commission Habitat Management Section. Fish and Boat Commission Executive Director Peter A. Colangelo (above center, wearing PFD) helped with the project. Volunteer groups included Boy Scout Troop 28, Keystone Bass'n Gals, Juniata Conservation Club, Youth Forestry Camp #3, Raystown Striper Club, Blair Bassmasters, and the Friends of Raystown Lake.



photos: U.S. Army Corps of Engineers

The Fish America Foundation and Wildlife Forever helped fund the Raystown Lake project with a \$10,000 donation. Pictured below are (from left) Jude Harrington, Supervisory Ranger, Raystown Lake, U.S. Army Corps of Engineers; Ron Rabina, Friends of Raystown Lake President; Tom Martial, Fish America Foundation Director; Dave Houser, Commission Habitat Management Section Chief; and Allen Gwinn, Raystown Lake Park Ranger. The Raystown Lake project is a part of a comprehensive habitat management plan between the U.S. Army Corps of Engineers and the Fish and Boat Commission. The Adopt-a-Lake agreement, signed in 1988, officially began the fish structure program at Raystown. This program has been responsible for placing over 500 cover, nesting and spawning structures in Raystown Lake. The intent of the structure placement is to improve the fishery habitat.

Pennsylvania Anglers Big on Bass

Bass grow big in Pennsylvania, so for good reason the state's anglers are big on bass. According to a recently released report by the United States Department of the Interior's Fish and Wildlife Service, Pennsylvania has the third busiest bass season in the nation.

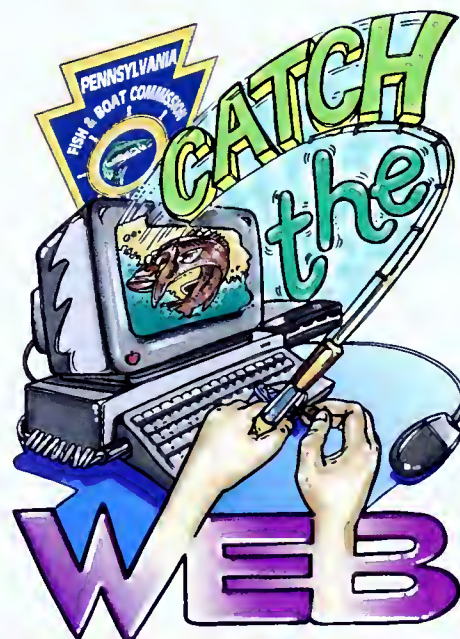
The report, "Black Bass Fishing in the U.S.," projects that some 7.2 million bass fishing trips are taken each year in the Commonwealth. Only Texas with about 13.4 million bass fishing trips and Florida with nearly 9.8 million trips topped the Keystone State.

The report represents angling activity by state residents and non-residents combined, but the findings excluded any fishing in the Great Lakes, including Lake Erie in Pennsylvania. Considering that Lake

Erie is home to a world-class smallmouth bass population and attracts tens of thousands of anglers each year, Pennsylvania's numbers could be even higher than the figures projected.

The "Black Bass Fishing in the U.S." report was based on numbers gathered in the National Survey of Fishing, Hunting and Wildlife-Associated Recreation. The survey looked only at anglers of license-buying age (16 years and older).

The report concluded that nationally, bass are pursued by 12.8 million anglers. U.S. anglers fished for bass more than 158 million days—an average of 12.3 days per angler. Pennsylvania anglers were actually behind that curve, averaging 11.3 days of bass fishing apiece.—Dan Tredinnick.



<http://www.fish.state.pa.us>

Anglers Currents

Handbook Gets Thumbs Up

The Pennsylvania *Boating Handbook* has been recognized as the top publication of its kind in the nation. The Fish and Boat Commission publication was lauded by the Association for Conservation Information, which selected the handbook as the best regulations publication in the country.

The handbook is designed to provide boaters with information they need to know when operating watercraft in Pennsylvania. It reviews the Commission's boating regulations and includes information and tips to follow while boating. Although it does not present the complete text of the actual laws and regulations, it does provide a layman's summary of those requirements.

Fishin' from the Kitchen

Baked Walleye with Mushrooms and Red Pepper Sauce by Wayne Phillips



photo Wayne Phillips

4 6-ounce to 8-ounce walleye fillets
2-3 cups mushrooms, thinly sliced
1 roasted red pepper
1/2-cup fresh tarragon leaves,
or 2 tsp. dried
fresh lemon
salt and pepper
olive oil

This recipe serves four. Roast the whole red pepper until the skin is charred. Put it in a paper bag until cooled. Remove the skin and core, and chop. Pulse it in a food processor until smooth. Season with salt and pepper. Add 1 tsp. lemon juice, a pinch of tarragon and 2 tbsp. olive oil. Pulse until well blended.

Brush olive oil over fillets, and sprinkle with tarragon, salt and pepper. Bake in

a 400-degree oven until done, about 10 minutes per inch, measured at each fillet's thickest part.

Saute mushrooms in 1 or 2 tsp. olive oil in a non-stick pan. Add 1/4-cup water to assist cooking the mushrooms and prevent burning. Cook the mushrooms over low heat until they are dry. This makes them far more flavorful.

Arrange beds of mushrooms and place walleye fillets on top. Ladle the red pepper sauce over the fish.

Serve with "smashed" potatoes. Wilted spinach or beet greens are excellent accompaniments.

"Smashed" potatoes are simple to make. Bake potatoes, place them between waxed paper and smash them with a pan. Salt and pepper the potatoes and brown in a skillet until crusted.



Daniel Byorick (left) was recently honored with a trout/salmon stamp set for his untiring help in stocking during the last 11 years. Byorick has used his specially rigged all-terrain vehicle to move fish buckets up and down the banks of Harveys Creek, and he's helped the Nanticoke Conservation Club with many projects. The award was presented last September by WCO Jim Stout, Northern Luzerne District, at a meeting of the Nanticoke Conservation Club.

Scholarship Winner Announced

Troy Gantt, a freshman at Penn State's School of Agriculture, has been named winner of the 1997-98 Ralph W. Abele Scholarship. Gantt received \$1,000 to help in pursuing his college education. He's a 1997 graduate of Greenwood High School, Millers-town, Perry County.



"I plan to major in environmental education," Troy says. "Ralph Abele influenced me greatly as I was growing up. We were next-door neighbors, and he often showed me interesting things about the environment on field trips."

The Ralph W. Abele Conservation Scholarship Fund was established by the family and friends of Ralph W. Abele following the death in 1990 of the former Fish and Boat Commission Executive Director. The scholarship is a living, continuing memorial designated to perpetuate Ralph's devotion to nature. Since 1990, the scholarship fund has awarded some \$5,000 to students to help in their formal education in fields related to the environment.

Charting the Delaware's Future

The results of a survey conducted by the Delaware River Basin Commission (DRBC) as part of a campaign to develop policy-level strategy to help chart the future are now available to the public. The survey was mailed last April to some 2,000 constituents who represent a wide spectrum of interests in the basin.

The survey sought opinion on the

Commission's performance in meeting coordination and management objectives identified in the Delaware River Basin Compact, the document that outlines the Commission's powers and duties. The constituents also were asked to assess the effectiveness of current Commission activities and programs as well as to comment on possible future Commission initiatives.

The survey results are contained in a document titled *Delaware River Basin Commission Survey to Assess its Management of the Basin's Water Resources*. It can be obtained by calling 609-883-9500 ext. 215, and leaving your name and address, or it may be downloaded from the Commission's web site at <http://www.state.nj.us/drbc/drbc.htm>.



The mission of the Pennsylvania Fish & Boat Commission is to provide fishing and boating opportunities through the protection and management of aquatic resources.

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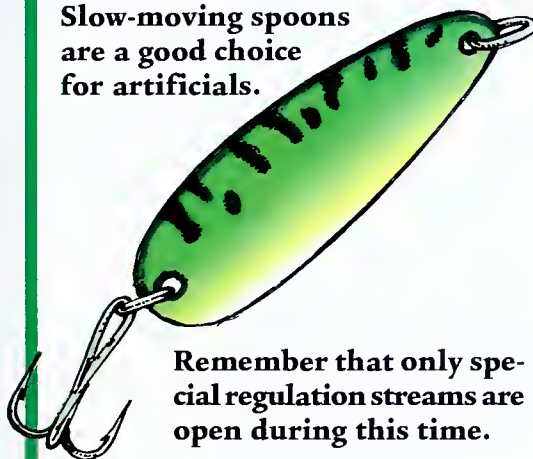
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PFBC World Wide Web Site:

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Angler's Notebook by Seth Cassell

Late-autumn trout fishing on freestone streams isn't as productive as it is in the spring and summer, but it does have its rewards. There are fewer anglers on the water, and many times, the trout that you do catch are of nice size. Fish much the way you would in the spring—low and slow. Dead-drifting a size 8 or 10 stonefly nymph is a good tactic for fly fishermen. Slow-moving spoons are a good choice for artificials.



Remember that only special regulation streams are open during this time.

Always have a small needle handy in your tackle box or vest. Many new painted lures and jigs have hook eyes clogged with excess paint, preventing you from tying them on the line. A needle can be used to pick out this excess paint. If you don't have one handy, try using another hook point.

After fall turnover, look for walleyes in the deep water, where the water is warmer than the surface water. They especially like areas near structure, such as channels, steep dropoffs and rock ledges. Try slow, vertical jigging with the hook tipped with a minnow.

Even when you wear fishing gloves, it's easy for hands to get cold when angling during this season. This condition can be a nuisance when trying to tie on a new lure or otherwise rigging your terminal tackle. To minimize knot tying, use snap swivels when possible. If not, have some hand warmers ready to go in your pocket. Warming your hands for a few moments gives you the dexterity to tie knots easily. There are several varieties on the market, including disposable and reusable ones. They can be found at most sporting goods stores.

Ever notice how the same species of gamefish from different waters have slightly different colorations? Several factors can cause this occurrence: Genetic variation in populations, different food sources and the surrounding environment. Gamefish tend to camouflage themselves with their surroundings to hide from predators and to keep prey from seeing them. A good example of this natural occurrence can be seen in shallow freestone trout streams. Hatchery trout tend to "glow" in the water, making them easy to see by anglers and other predators. If you go to a wild trout stream, you may notice that the trout are much harder to see without close scrutiny.

Not all minnows are large. Streamer flies that imitate minnows don't always have to be big, either, even though trout sometimes can be tempted with large artificial lures and natural baits. Streamers you'd use for trout are most often effective in small sizes. Try your favorite patterns on size 8 or size 10 hooks that are 3X or 4X long.

illustration- Ted Walke

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